Program of Studies for Kentucky Schools

Grades Primary-12

Kentucky Department of Education
Gene Wilhoit, Commissioner

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Preface

The *Program of Studies for Kentucky Schools Grades Primary-12* helps ensure that all students across the commonwealth are provided with common content and have opportunities to learn at a high level. This document provides administrators, teachers, parents, and other stakeholders in local districts with a basis for establishing and/or revising their curricula. The instructional program should emphasize the development of students' abilities to acquire and apply knowledge and assure that appropriate accommodations are made for the diverse populations of students found within Kentucky schools.

The purpose of the *Program of Studies* is to outline the minimum content required for all students before graduating from Kentucky high schools. This document specifies only the content for the required credits for high school graduation and primary, intermediate, and middle level programs leading up to these requirements. Schools and school districts are charged with identifying the content for elective courses and designing instructional programs for all areas. Schools and school districts are also responsible for coordinating curricula across grade levels and among schools within districts. A coordinated curricular approach ensures that all students have opportunities to experience success with Kentucky's learning goals and academic expectations. It also provides for a thoughtful continuum of content and skills across grade levels while assuring coverage of all content outlined in the *Program of Studies*.

This document contains four major sections: Introduction, Curriculum Guidelines, Required Content Areas, and Elective Programs. The minimum content for specific required credits and courses is outlined in the section titled Required Content Areas. Each subject area sub-section begins with an introduction that provides background information, followed by charts that specify the minimum content. The content is based on Kentucky's learning goals, academic expectations, and input from professional organizations, teachers, and administrators. Learning Goal 1 (Basic Communication and Mathematics Skills) and Goal 2 (Application of Core Concepts) and are cited most often within this document and provide the basic academic skills and content for what Kentucky high school graduates should know as they exit public schools. However, the skills identified in the other goals are equally important. Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge) provide students with strategies for life-long learning. Academic expectations within each of these four goals (Goals 1, 2, 5, 6) are embedded throughout the content descriptions in the *Program of Studies*. Although it has been decided not to assess Goal 3 (Developing Self-Sufficiency) and Goal 4 (Responsible Group Membership) on a statewide level, Kentucky Board of Education urges all educators, school boards and councils, parents, and students to give continued emphasis to the development of responsible group membership and personal self-sufficiency.

Introduction

Educational Goals

The following capacity and goal statements of the Kentucky Education Reform Act of 1990, as found in KRS 158.654 and KRS 158.6451, are the basis for instructional programs in Kentucky's public schools. All students shall be assisted in acquiring the following capacities:

- Communication skills necessary to function in a complex and changing civilization;
- Knowledge to make economic, social, and political choices;
- Understanding of governmental processes as they affect the community, the state, and the nation;
- Sufficient self-knowledge and knowledge of their mental and physical wellness;
- Sufficient grounding in the arts to enable each student to appreciate their cultural and historical heritage;
- Sufficient preparation to choose and pursue their life's work intelligently; and
- Skills to enable them to compete favorably with students in other states.

Furthermore,

- Schools shall expect a high level of achievement of all students.
- Schools shall develop their students' ability to:
    - Use basic communication and mathematics skills for purposes and situations they will encounter throughout their lives;
    - Apply core concepts and principles from arts and humanities, English/language arts, health, mathematics, physical education, science, and social studies to situations they will encounter throughout their lives;
    - Become self-sufficient individuals;
    - Become responsible members of a family, work group, or community including demonstrating effectiveness in community service;
    - Think and solve problems in school situations and in a variety of situations they will encounter in life; and
    - Connect and integrate experiences and new knowledge from all subject matter fields with what they have previously learned and build on past learning experiences to acquire new information through various media sources.
- Schools shall increase their students' rates of school attendance.
- Schools shall reduce their students' dropout and retention rates.
- Schools shall reduce physical and mental health barriers to learning.
- Schools shall be measured on the proportion of students who make a successful transition to work, postsecondary education, and the military.

Legal Base

The following statutes and regulations provide a legal base for this publication:

KRS 156:160: Promulgation of administrative regulations by Kentucky Board of Education.

(1) With the advice of the Local Superintendents Advisory Council, the Kentucky Board of Education shall promulgate administrative regulations establishing standards which school districts shall meet in student, program, service, and operational performance. These regulations shall comply with the expected outcomes for students and schools set forth in KRS 158.6451. Administrative regulations shall be promulgated for the following:

- courses of study for the different grades and kinds of common schools; and
- The minimum requirements for high school graduation.

704 KAR 3:305: Minimum high school graduation requirements.

This administrative regulation established the minimum high school graduation requirements necessary for entitlement to a high school diploma, including the requirements beginning with the graduating class of 2002.

704 KAR 3:304: Required program of studies.

This administrative regulation adopts into law this *Program of Studies*, dated February 1998.

Curriculum Guidelines

Curriculum Guidelines

The following sections describe characteristics of education in Kentucky at the different levels: preschool, primary, intermediate, middle, and high school. In addition, programs regarding special populations of students, such as children and youth with disabilities and gifted and talented students, are described. While these programs share some characteristics, they also have defining traits.

An appropriate educational program at all levels should be student-centered. A curriculum, based on Kentucky's learning goals and academic expectations, should be designed to promote

- knowledge of basic skills;
- connections among content areas;
- active student involvement in learning;
- use of higher-order thinking skills;
- continuous, authentic assessment practices; and
- relevancy to real life.

Preschool Education

For many students, the preschool program is their introduction to the educational environment. Preschool education programs are available for all four-year-old children who are eligible for free lunch; all three- and four-year-old children with developmental delays or other disabilities, regardless of income; and other four-year-old children as placements are available. The preschool program is designed to be developmentally appropriate for young children.

"Developmentally appropriate" is defined in law to mean that the program focuses on the child's physical, intellectual, social and emotional development, including interpersonal, intrapersonal, and socialization skills. Intellectual skills are promoted in the program by encouraging children to solve problems, initiate activities, explore, and learn by doing. The curriculum supports a variety of skills that are integrated into activities targeted toward the interests of the children. A major focus of the preschool program is language development-listening, speaking, and becoming familiar with books. As they are developmentally ready, children begin learning about letters and numbers within this context.

The preschool curriculum supports a daily balance of activities that are appropriate for preschool children and are designed to provide individual and group instruction that meets the needs of all children. An appropriate preschool curriculum uses learning centers with activities, such as art, housekeeping/dramatic play, and active, hands-on materials.

Primary Education

The primary program is an ungraded program that serves children from the time they enter the elementary school program until they are ready to enter the fourth grade. During this period, usually four years, students learn in environments that are appropriate for the developmental levels and learning styles of young children. The curriculum and instructional design of the primary program provide a framework for teachers to identify the skills and abilities of each child. In addition, primary teachers establish classroom environments that support individual and group instruction that meet the needs of all children.

The primary program is clearly organized to a) reflect Kentucky's learning goals and academic expectations, b) effectively develop and align curriculum and instructional design to achieve those goals, and c) use various ways to measure a child's continuous progress. The primary curriculum, which is grounded in the critical attributes of the primary program, allows children to learn basic skills, and social behaviors (e.g., working with others, taking turns) in the context of everyday experiences and natural learning processes.

The primary curriculum presents an organized approach to instruction and learning. Using an integrated approach to curriculum and instructional design, teachers address the intellectual, social, emotional, aesthetic, and physical needs of young children to provide optimum learning environments. Primary teachers use Kentucky's learning goals and academic expectations to develop instruction that integrates content areas and skills. Students, in turn, must demonstrate competence in these content areas and skills to make a successful transition to the intermediate grades.

Intermediate Education

The intermediate grades, most often viewed as grades four and five, builds upon the integrated approach to curriculum and instruction begun in the primary years. The intermediate program sets high expectations for all students through a rigorous curriculum that focuses on Kentucky's learning goals, academic expectations, and the developmental characteristics of pre-adolescent children.

The fourth grade program continues to address the intellectual, social, emotional, aesthetic, and physical needs of fourth grade students, thereby supporting their successful transition from primary school. The fifth grade program provides a continuation and extension of learning from the primary and fourth grade programs and prepares students for transition to the middle level program.

Content charts included in this document for the intermediate level are arranged sequentially by grade. However, it is the prerogative of school councils to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

Middle Level Education

The middle level program, most often viewed as grades six through eight, should provide distinct educational experiences for students. The program should expand and extend students' learning from the elementary grades and prepare them for the high school experience. It should reflect a rigorous academic curriculum, support the affective needs of students, provide a variety of learning experiences, and be delivered by educators who understand the developmental needs of young adolescents.

The primary focus of the middle level program is the academic core curriculum which is defined by the content standards presented in this document. In addition, effective middle level programs should encompass more than the content outlined in the Program of Studies to fully address Kentucky's learning goals, academic expectations, and the developmental needs of young adolescents.

Age-appropriate experiences that enrich and expand the core curriculum should be included in middle level programs. These opportunities allow students to pursue personal interests, support academic core learning, explore career options, experience the arts, and foster fitness and health. It is suggested that these opportunities be provided through exploratory or enrichment classes or by integrating them into the core curriculum. This gives students additional avenues for success and foundations for making informed decisions about their futures.

Content charts included in this document for the middle level are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

High School Education

The high school program should provide culminating school experiences that prepare students for successful transition to adult life. The curriculum must reflect the core belief that all students are capable of learning at high levels and provide a variety of experiences that meet the needs of each learner.

By the time students complete high school, they should know and be able to apply the basic skills and concepts of each discipline as reflected in Kentucky's learning goals and academic expectations. Kentucky graduates must be prepared to connect the school's curriculum with their own life experiences so they can become life-long learners.

The core academic program of the high school should focus on the content standards presented in the *Program of Studies*. However, an effective high school program is broader than the content outlined in this document which contains only a state minimum for high school graduation.

The high school program should be student-centered and consider the needs of all students. A rigorous academic curriculum is designed to produce high school graduates who are resourceful problem-solvers, who can adapt to the constant changes in our world, and who are responsible citizens.

High School Credit Earned in Middle Grades

All students must demonstrate successful completion of the courses required for high school graduation. It is expected that most students will complete those courses during their high school careers. However, local school districts may offer those courses to middle school students **if the students demonstrate mastery of the middle level content** as specified in the *Program of Studies* before enrolling in the high school course. The following criteria also must be met

- the content of the course offered at the middle level is the same as that defined in the *Program of Studies* for the high school course;

- the district has criteria in place to make reasonable determination that the middle level students are capable of success in the high school course; and

- the middle level course is taught by teachers with either secondary or middle level certification with the appropriate content specialization.

Definition of High School Graduation Credit

A high school graduation credit can be awarded in either of two ways: Carnegie units or performance-based credits. However, performance-based systems developed by local school districts will be subject to approval by the Kentucky Board of Education before being implemented.

Correspondence Courses

Local school districts have the option of allowing students to enroll in correspondence courses. A district using that option must have a policy regarding the use of correspondence courses. The following issues should be addressed in district policy:

- the circumstances under which students may enroll in correspondence courses,
- the number of correspondence courses students may take for high school graduation,
- the number of correspondence courses students may take in one year,
- the types of courses, required or elective, for which correspondence courses may be accepted, and
- the institutions from which correspondence courses will be accepted.

Individual Graduation Plan (IGP)

Beginning with the graduating class of 2002, each student in a common school shall complete an Individual Graduation Plan (IGP). An IGP is a four-year curricular plan that emphasizes career development and specifically addresses Vocational Studies Academic Expectations 2.36-2.38. Schools must develop IGPs for all students including transfer students and students with special needs.

Individual Graduation Plans will set learning goals for students based on academic and career interests. Prior to entering high school, a student, with the guidance of parents and school personnel, will develop an IGP that outlines how he or she will achieve Kentucky's learning goals and academic expectations. Students will choose programs that help them make a successful transition to college, vocational/ technical school, the workforce, or the military. Students create IGPs to plot a course through required academic coursework and elective choices leading to postsecondary options. IGPs encourage students and their parents to consider educational and career goals and plan how best to achieve them.

Students start planning for high school while still in the middle grades. High school and district staff work with middle level faculties to ensure that eighth grade students and their parents have sufficient information regarding high school course sequences and postsecondary opportunities to make informed decisions regarding the development of an IGP.

Individual Graduation Plans are not static; they change as students progress and as goals change. Schools will keep files of students' plans which will be reviewed annually and approved by students, parents, and school officials. Schools should develop multiple strategies to ensure that timely and accurate information is available to students as they reassess their educational plans.

Children and Youth with Disabilities

Overview

Children and youth with disabilities are those who need specially designed instruction in accordance with their Individual Education Program (IEP) or 504 Plan.

A comprehensive curriculum framework, or course of study for children and youth with disabilities, is based on Kentucky's learning goals, academic expectations, the Program of Studies, and each school's curricula. It also addresses other educational needs that result from the student's disability. The course of study enables students to participate in the general curriculum. Schools extend and modify curricula for students with disabilities to facilitate attainment of Kentucky's learning goals, academic expectations, and each individual student's IEP goals and objectives.

For a student with educational disabilities, the Admissions and Release Committee (ARC) develops a student's IEP targeting goals essential for reaching the learning goals and academic expectations. In addition, the ARC identifies specially designed instruction including instructional strategies, supports, services, and accommodations needed by the student to be involved in and to progress in the general education curriculum, and to earn a diploma or a certificate of program completion. Planning an educational program for a student with disabilities requires careful planning and implementation by the ARC; alignment of the student's IEP with Kentucky's learning goals, academic expectations, and content and skills identified in the Program of Studies; and collaborative involvement of general education and special education.

General education staff with certification in academic discipline areas and special education staff shall collaborate in the design and planning for the delivery of course content instruction within academic disciplines to assure alignment with Kentucky's learning goals, academic expectations, and content standards for each discipline. Each student's ARC or 504 committee shall address how and when this collaboration takes place to assure joint planning prior to and during implementation of a student's IEP or 504 Plan. An ARC or 504 committee shall determine the placement in which a student will receive content instruction.

Implementation Framework

A brief synopsis of the Diploma Program and the Certificate Program follow.

Diploma Program

Schools are to provide students with disabilities the opportunity and necessary instructional supports and accommodations to progress through a course of study leading to a diploma. Students with disabilities who earn the required high school credits through successful completion of content area and elective course work as described in the Program of Studies shall be awarded a diploma.

Students with disabilities may pursue a course of study leading to a diploma in one or a combination of the following ways:

- completion of at least 22 credits as described in the Program of Studies; or

* Note: Pursuant to 704 KAR 3:305, the requirement of 22 credits begins with the graduating class of 2002.

- completion of 22 credits * based on submission by a local board of education of an integrated, applied, interdisciplinary or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations; or
- completion of at least 22 credits * based on submission by a local board of education of a substitute functional, integrated, applied interdisciplinary or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

Certificate Program

If the severity of a student's disability is such that it precludes a course of study leading to a diploma, the ARC shall document that the following criteria are met:

- the student's demonstrated cognitive disability and adaptive behavior itself prevents completing the regular course of study, even with program modifications, adaptations, and extended school services;
- the student's current adaptive behavior requires extensive direct instruction in multiple settings to apply functional skills in school, work, home, and community environments;
- the student's inability to complete the course of studies is not the result of excessive or extended absences nor the result of visual or auditory disabilities; specific learning disabilities; emotional behavioral disabilities; or social, cultural, or economic differences;
- the student, when instructed solely or primarily through school-based instruction, is unable to apply academic skills at a minimal competency level in natural settings; and
- the student is unable to acquire, maintain, and generalize skills without intensive, frequent, and individualized community-based instruction.

The decision that a student is eligible for a certificate program is made by the ARC only after a thorough review and documentation of the student meeting the criteria stated above. The ARC must clearly document the decision in the student's IEP. The coursework for a student pursuing a certificate program reflects the focus on Kentucky's learning goals required for all students consistent with the goals of the IEP. For students on a certificate program, demonstration of those expectations is still to be evident in their alternate portfolios. At all age levels, the student must be provided services and supports to be involved and to progress in the general curriculum in accordance with the student's present level of functioning and in order for the student to participate in extracurricular activities.

* Note: Pursuant to 704 KAR 3:305, the requirement of 22 credits begins with the graduating class of 2002.

College Board Advanced Placement (AP) and International Baccalaureate (IB) Programs

Overview

College Board Advanced Placement (AP) and International Baccalaureate (IB) courses provide avenues for motivated college-bound students to access challenging curricula which facilitate high level attainment of Kentucky's learning goals.

The College Board Advanced Placement Program provides high school students with an opportunity to earn college credit at nearly 3,000 universities and colleges across the country. Both the International Baccalaureate and the College Board Advanced Placement Program provide transitions from secondary school to college through rigorous curricula and exposure to academic experiences usually reserved for college students.

Implementation Framework

Advanced Placement courses require use of standardized prescribed college level curriculum; textbooks are selected from among standard college texts in the appropriate content area. Several sample basic syllabi are provided by the College Board, but teachers may design their own syllabi, add extensions, and employ multiple strategies in their implementation. Special training for teachers available through College Board AP training institutes is recommended but not required.

The College Board has no restrictions on the age/grade level of students who take Advanced Placement courses and/or Advanced Placement examinations; college credit is solely based on the level of performance on the examination. Access to the courses may be achieved through regular classes, technology, independent study, or other means.

Training for teaching in the International Baccalaureate Program is required.

Gifted and Talented

Gifted and talented students include those who are identified as possessing demonstrated or potential ability to perform at an exceptionally high level in general intellectual aptitude, specific academic aptitude (e.g., mathematics, science), creative thinking, leadership skills, or in the visual or performing arts.

Gifted students shall be provided articulated, primary through grade twelve, services that are qualitatively differentiated to meet their individual needs; result in educational experiences commensurate with their interests, needs, and abilities; and facilitate the attainment of high level goals. For gifted students, access to advanced level instruction—sometimes several years beyond grade level—is necessary to provide continuous progress and challenge and assure the attainment of high level goals appropriate for this population.

Gifted students shall be grouped for instructional purposes based on their abilities, needs, or interests. In addition to instructional grouping, school councils shall assure various service delivery options. Using the most appropriate options, each school shall differentiate, replace, supplement, or modify curricula to facilitate high-level attainment of Kentucky's learning goals and to assist students identified and diagnosed as gifted and talented to develop their individual interests, needs, and abilities.

Classroom teachers who instruct gifted and talented students shall have appropriate professional development to address the needs, interests, and abilities of these students; gifted education teachers shall have the appropriate certification in gifted education.

With the exception of academic competitions and optional extracurricular offerings, services shall be provided during the regular school hours.

National Origin Minority Children with Limited English Proficiency (LEP)

Overview

Title VI of the Civil Rights Act of 1964 and section 204(f) of the Equal Education Opportunities Act of 1974 obligate schools to provide equal educational opportunities to children and youth with limited English proficiency. According to Section 7501, Title VII: Bilingual Education, Language Enhancement, and Language Acquisition Programs reauthorized in 1994 under the Improving America's School Act, a student with limited English proficiency is an individual who

- was not born in the United States or whose native language is a language other than English and who comes from an environment where a language other than English is dominant; or
- is a Native American or native Alaskan or who is a native resident of the outlying areas (United States territories) and comes from an environment where a language other than English has had a significant impact on such an individual's level of English proficiency; or
- is migratory and whose native language is other than English and comes from an environment where a language other than English is dominant; and
- who has sufficient difficulty speaking, reading, writing, or understanding the English language and whose difficulties may deny such an individual the opportunity to learn successfully in classrooms where the language of instruction is English or to participate fully in our society.

Schools shall provide students with limited English proficiency educational opportunities to meet the same standards for academic performance expected for all children and to participate in the same range of course offerings and content. A comprehensive curriculum framework or course of study for children and youth with limited English proficiency is based on Kentucky's learning goals, academic expectations, content and skills identified in the *Program of Studies*, each school's curricula, and the unique linguistic needs of the students.

The course of study shall enable children and youth with limited English proficiency to achieve English language proficiency while attaining the same Kentucky's learning goals and academic expectations expected of their peers. The educational program shall promote language and cognitive development, includes consideration of a student's native language, and incorporates the student's cultural background. It provides students with limited English proficiency the social, academic, and vocational language and cognitive skills necessary for participation in opportunities available to English speaking peers.

If a student's inability to speak and understand English prevents the student from access to, and effective participation in, the school's educational program, the school shall provide appropriate educational services and programs. These services and programs shall be designed to meet the English language and academic needs of the students while assisting them in overcoming language barriers.

To ensure that students with LEP have access to the school's curriculum, an alternative language program must be provided. The Office of Civil Rights (OCR) considers the following criteria when determining a school's compliance with Title VI of the Civil Rights Act of 1964:

- the program the schools choose is recognized as sound by experts in the field or is considered a legitimate experimental strategy;
- the programs and practices used by the school system are reasonably calculated to implement effectively the educational theory adopted by the school; and
- the program succeeds, after a legitimate trial, in producing results indicating that students' language barriers are actually overcome.

Schools are allowed flexibility in designing the educational program, interventions, and instructional strategies necessary to meet the needs of students based on effective practices in second language acquisition. Models for delivering the course of study may include alternative language programs (e.g., English as a Second Language (ESL), sheltered instruction in English or content-based programs, structured immersion programs), bilingual programs, and modified general education classes. Other models that meet the above OCR criteria may also be considered.

Implementation Framework

Schools shall provide students with limited English proficiency the opportunity and necessary instructional and program supports, including necessary accommodations, to progress through a course of study leading to a diploma. Students with limited English proficiency may pursue a course of study leading to a high school diploma in one or a combination of the following ways:

- completion of at least 22 credits * as described in the *Program of Studies*; or
- completion of 22 credits * based on submission by a local board of education of an integrated, applied, interdisciplinary or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations. In high school programs, ESL may be offered for credit in accordance with these requirements.

* Note: Pursuant to 704 KAR 3:305, the requirement of 22 credits begins with the graduating class of 2002.

Technology in Education

The Master Plan for Education Technology, mandated by the 1990 Kentucky Education Reform Act (KRS 156.670), is implemented as the Kentucky Education Technology System (KETS). Authors of the reform envisioned the use of computing and telecommunications technology as critical tools for improving student learning, teacher effectiveness, and administrative efficiency. In addition, legislators emphasized that the system of common schools must be substantially uniform throughout the state. Technology can play an important role in bringing equal educational opportunities to every child.

The focus of KETS is technology-enhanced curriculum integration. KETS goes beyond simply teaching students how to use computers. The implementation of technology in every district is to be determined by school councils. The school's objectives for technology should be aligned directly with their objectives for educational improvement. Schools must decide how technology can best enhance, support, and extend learning in specific content areas. Students should use computers to conduct research; gather and analyze data; create spreadsheets, charts, graphs, and databases; and create multimedia presentations.

Required Content Areas

Primary Education

Primary Arts and Humanities

Primary Arts and Humanities

The content for arts and humanities is aligned with Kentucky's academic expectations. This content provides students with a grounding in the arts and enables them to appreciate their cultural and historical heritage. Included in the arts are dance, music, theatre, and visual arts. The processes of creating, performing, and responding should be woven throughout all content and topic areas.

The **dance** strand provides students with opportunities to develop movement skills to explore dance elements, and to understand that dance is used as a means of communication and self-expression. Through dance, students begin to understand and appreciate their own culture and respect dance as a part of the heritage of other cultures.

Students explore the elements of music in the **music** strand. Primary arts and humanities focuses on the skills of listening, singing, playing, moving, reading, and creating. Students begin to understand that music is a way to express human feelings and ideas.

Through the **theatre** content, students begin to explore the elements of drama. Students develop their abilities to perform and to express their understanding of the world through dramatic productions. In addition, students broaden their knowledge of other cultures.

Visual arts study provides students with opportunities to use a variety of media, to gain familiarity with the visual elements and principles of design, and to create art works that serve a variety of purposes. As students examine their own works and those of others, they begin to understand that visual art products are expressions of one's thoughts, feelings, and ideas.

Through the study of the elements and skills of each art form (dance, music, theatre, visual art) students begin to understand and develop an appreciation of their own cultures, cultures of others, and how place and time has influenced artistic expression.

Students also learn that, although the various arts disciplines have unique qualities, they share many properties and connect with almost all other subjects in the curriculum. Arts specialists and generalists work together to provide instruction that allows students to acquire the necessary knowledge and skills for participating in, responding to, and appreciating the arts.

Content charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. A blank box indicates that no new content or skill is introduced at that level; whereas an arrow crossing a dotted line shows that the content or skill continues across multiple levels. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

In addition to specifying arts and humanities content, bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a more comprehensive link between essential content and the skills and abilities important to learning.

Primary Dance

Academic Expectations	Content/Process	
Elements of Dance (1.15, 2.22-2.26)	**Entry**	**Students will**
		• experience various ways of moving with attention given to the elements of dance (space, time, force).
		• demonstrate an awareness of the elements of dance.
		• perform the elements of dance in a pattern of movement.
		• recognize and begin to understand the elements of dance in a pattern of movement.
	Exit	• identify and express the elements of dance in a pattern of movement.
Dance Movements and Forms (1.15, 2.22-2.26)	**Entry**	**Students will**
		• explore locomotor (walk, run, hop, jump, leap, skip, slide, gallop) and nonlocomotor (e.g., bend, stretch, twist, swing) movements.
		• demonstrate locomotor and nonlocomotor movements.
		• perform a pattern using a combination of locomotor and nonlocomotor movements.
		• recognize and begin to understand the differences in locomotor and nonlocomotor movements in simple patterns.
	Exit	• identify and use locomotor and nonlocomotor movements in simple patterns.
Historical and Cultural Context (1.15, 2.22-2.26)	**Entry**	**Students will**
		• experience dances of diverse cultures, purposes, and styles.
		• develop an awareness of different cultures, purposes, and styles.
		• associate dances with specific cultures, purposes, and styles.
	Exit	

Primary Visual Arts

Academic Expectations	Content/Process	
Elements of Art and Principles of Design (1.13, 2.22-2.26)		**Students will**
	Entry	• experience art with attention given to the elements of art (line, shape, color, form, texture, space, value) or principles of design (e.g., balance, emphasis, pattern).
		• demonstrate an awareness of the elements of art and principles of design.
		• recognize elements of art and principles of design in two- and three-dimensional works of art.
	Exit	• identify and use the elements of art and principles of design.
Processes and Media (1.13, 2.22-2.26)		**Students will**
	Entry	• explore a variety of media (e.g., crayon, pencil, paint) and processes (e.g., drawing, painting, weaving) used for creating works of art.
		• experience a variety of media and processes used for creating works of art.
		• develop skills in a variety of media and processes used for creating works of art.
		• recognize and begin to understand a variety of media and processes used for creating works of art.
	Exit	• identify and use a variety of media and processes.
Historical and Cultural Context (1.15, 2.22-2.26)		**Students will**
	Entry	• explore art from different cultures, periods, and styles.
		• experience art from different cultures, periods, and styles.
		• develop an awareness of different cultures, periods, and styles.
		• recognize and begin to understand works of art as belonging to particular cultures, periods, and styles.
	Exit	• identify works of art from particular cultures, periods, and styles.

Primary Music

Academic Expectations	Content/Process	
Elements of Music (1.14, 2.22-2.26)		**Students will**
	Entry	• respond to music with minimal attention given to the elements of music (rhythm, melody, form, harmony, timbre, dynamics, tempo).
		• begin to demonstrate an awareness of the elements of music.
		• recognize the elements of music.
		• begin to recognize terminology, notation, and symbols within the elements of music.
		• identify and discuss the elements of music.
	Exit	• interpret and use terminology, notation, and symbols within the elements of music.
Historical and Cultural Context (1.14, 2.25, 2.26)		**Students will**
	Entry	• listen to music of diverse cultures, periods, and styles.
		• experience music of diverse cultures, periods, and styles.
		• use simple music terminology when describing music of diverse cultures, purposes, and styles.
		• develop an awareness that specific styles of music define time periods and respective cultures.
	Exit	• identify music from diverse cultures, periods, and styles.

Primary Theatre (Drama)

Academic Expectations	Content/Process	
Elements of Drama (2.22-2.26)		**Students will**
	Entry	• experience dramatic works with attention given to the elements of drama (plot, character).
		• demonstrate an awareness of the elements of drama such as plot, character, visuals (e.g., scenery, costumes, props, make-up), and acting (e.g., voice, expression, diction, projection).
		• recognize elements of drama in dramatic works.
	Exit	• identify and use elements of drama in dramatic works.
Historical and Cultural Context (2.22-2.26)		**Students will**
	Entry	• experience dramatic works from different cultures, periods, and styles.
		• develop an awareness that different cultures, periods, and style influence dramatic works.
	Exit	

Primary English/Language Arts

Primary English/Language Arts

The English/Language Arts primary content block is aligned with Kentucky's academic expectations and blends the strands of reading, writing, speaking, listening, observing, inquiry, and using technology as a communication tool. In the primary program, students develop initial content knowledge and skills to build a foundation for later studies in intermediate grades.

Content is designed to build a wide range of reading experiences with print and nonprint materials that have literary, informational, persuasive, and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to develop writing in a variety of forms and for multiple audiences and purposes. The academic expectations of creating works (2.22) and understanding influences on literature (2.24 and 2.25) are appropriately embedded within the reading and writing strands; however, they are not the primary focus of English/Language Arts instruction. Speaking, listening, and observing skills are used to communicate information for a variety of authentic purposes, situations, and audiences. The integration of inquiry skills and technology with the other strands allows students to discover and communicate ideas and information. Furthermore, skills and processes from Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge) are incorporated throughout the content of English/Language Arts.

Content charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. A blank box indicates that no new content or skill is introduced at that level; whereas an arrow crossing a dotted line shows that the content or skill continues across multiple levels.

Each of the five strands begins with a statement in boldface type which describes the general content of that strand. Skills/processes in the bulleted lists provide further focus for the minimum content to be covered at each grade level. Statements in boldface type and bulleted lists must be combined for a complete description of the grade-level content. The lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Primary English/Language Arts

Students develop abilities to apply appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) for various authentic tasks.

Academic Expectations	Content/Process	
Reading (1.2) **Arts and Humanities (2.24, 2.25)**		**Meaning of Text**
		Students will
	Entry	• listen to a variety of genres (e.g., stories, poems, articles) to form an understanding of reading.
		• develop concept of self as reader through using experience, memorization, pictures, and imagination to make meaning from reading materials.
		• read material that rhymes, is predictable, and has high frequency words.
		• read and understand fiction and nonfiction materials with text features such as tables, tables of contents, and indices.
		• choose and read a variety of materials to gain understanding of the world around them and of the nature of texts, including literary materials (e.g., plays, poetry, short stories) and transactive materials (e.g., letters, articles).
	Exit	• read a variety of materials to accomplish authentic purposes, including reading for enjoyment, to locate information, and to complete tasks.
		Vocabulary
		Students will
	Entry	• use auditory and visual strategies to understand words and their meanings.
		• employ sight word vocabulary to make sense of text.
		• use word identification strategies, including prediction, context cues, and phonetic awareness, to read and understand unknown words.
	Exit	

Primary English/Language Arts (cont.)

Academic Expectations	Content/Process	
Reading (1.2) **Arts and Humanities (2.24, 2.25)**		**Concepts of Print**
		Students will
	Entry	• employ concepts of print including book handling and directionality (e.g., left to right, top to bottom, front to back).
		• make sense of reading materials through using word-by-word matching, punctuation, sentence structure, and the understanding that letters make words.
	Exit	
		Word Patterns
		Students will
	Entry	• develop awareness of sounds and patterns in language including auditory segmenting (dividing words into sounds), blending (combining sounds to make words), and rhyming.
		• make connections between letters and their corresponding sounds in words.
		• identify patterns in words.
		• apply patterns to unknown words in context.
		• apply syllabification (identifying or recognizing parts of a word) to unknown words in context.
	Exit	
		Experience with Text
		Students will
	Entry	• use prior experiences to help make sense of stories (additional supporting Academic Expectation 6.2).
		• use pictures and illustrations in context to make sense of text.
		• use syntactic (word structure) and semantic (word meaning) cues to make sense of text.
		• use predictions and confirming predictions to make sense of text.
	Exit	• integrate prior knowledge and experiences with text to infer, predict, and conclude (additional supporting Academic Expectation 6.2).

Primary English/Language Arts (cont.)

Academic Expectations	Content/Process	
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Entry**	**Monitoring Strategies**
		Students will
		• use monitoring strategies to confirm meaning in context.
		• use monitoring strategies to self-correct when text does not make sense.
	Exit	
	Entry	**Re-telling**
		Students will
		• use pictures to tell stories.
		• re-tell familiar stories to demonstrate understanding of plot.
		• re-tell stories or parts of stories containing beginning, middle, and end, and important details.
		• re-tell stories with the story elements of plot, setting, characters, and problem/solution.
	Exit	
	Entry	**Summarizing**
		Students will
		• summarize what happened in a story by telling and/or drawing.
		• summarize the events of a story in sequence through telling and/or drawing.
		• summarize the events of a story in sequence through drawing and writing.
		• identify main ideas of a variety of reading passages.
		• summarize a variety of reading passages by selecting the main ideas and main events or points.
	Exit	

Primary English/Language Arts (cont.)

Academic Expectations	Content/Process	
Reading (1.2) **Arts and Humanities (2.24, 2.25)**		**Text Structure**
		Students will
	Entry	• respond to rhythmic and patterned/predictable reading materials while listening.
		• identify structure of rhythmic and patterned/predictable reading materials.
		• understand basic story structure (beginning, middle, end).
		• identify story elements in a passage, including characters, setting, problem/solution, and plot.
		• identify organizational patterns of transactive materials.
	Exit	• use text structure to interpret print and nonprint (e.g., signs, electronic media) materials for authentic purposes.

Primary English/Language Arts (cont.)

Students learn and apply the writing process and criteria for effective writing, develop story structures and language patterns through visual and symbolic language, and compile a collection of writings for a variety of authentic purposes and audiences and in a variety of forms, including personal, literary, transactive, and reflective pieces.

Academic Expectations	Content/Process	
Writing (1.11) **Arts and Humanities (2.22)**		**Idea Development**
		Students will
	Entry	• produce, through drawing, symbols, and letters, writing which has meaning to the student.
		• produce, through drawing, symbols, and letters, writing which has meaning that remains constant.
		• develop ideas in writing in response to peer and teacher feedback.
		• recognize and develop ideas to support needs of audiences.
		• use details, explanations, and examples to support ideas for specific audiences and purposes.
	Exit	• use appropriate details, examples, and explanations to meet needs of audiences for authentic purposes in a variety of forms.
		Structural Patterns
		Students will
	Entry	• use principles of directionality (left to right, top to bottom, front to back) for placement of text and pictures.
		• recognize forms of writing organization (e.g., letter formats, stories, poetry).
		• write stories with beginning, middle, and end.
		• write pieces with introduction, body, and conclusion.
		• use appropriate formats and patterns for various genres.
	Exit	
		Sequencing
		Students will
	Entry	
		• construct writing with chronological sequence of events.
		• construct writing which contains sequence supported by details.
		• sequence ideas to support audience and purpose.
	Exit	

Primary English/Language Arts (cont.)

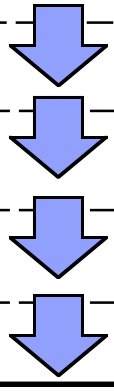
Academic Expectations	Content/Process	
Writing (1.11) **Arts and Humanities (2.22)**		**Organization**
		Students will
	Entry	• label pictures and drawings.
		• use combinations of pictures, symbols, letters, and words to convey meaning.
		• use words to form simple sentences.
		• form sentences with complex ideas and/or structures.
		• organize writing logically in paragraphs and through using transition words to move from one paragraph to another.
	Exit	• use a variety of transitions and organizational signals (e.g., bullets, bold print, graphics, headings).
		Correctness
		Students will
	Entry	• produce pictures, marks, and signs that represent print.
		• represent words with correctly formed letters for beginning and ending sounds.
		• use developmental spelling with correct letter formation.
		• recognize conventional spelling, punctuation, grammar, and capitalization.
		• use correct and appropriate spelling, punctuation, grammar, and capitalization in legible final drafts.
	Exit	• use tools (e.g., dictionary, thesaurus, writing resource book, technology) to edit their own writing for correctness.
		Responses
		Students will
	Entry	
		• connect reading, listening, observing, and inquiry to personal experience through applying writing-to-learn strategies in situations such as journals and graphic organizers and writing-to-demonstrate learning in situations such as graphic organizers and open-response questions.
		• demonstrate independent and critical thinking in writing-to-learn situations such as journals and graphic organizers and writing-to-demonstrate-learning situations such as graphic organizers and open-response questions.
	Exit	• produce a variety of written responses, some of which reflect on self as reader and writer.

Primary English/Language Arts (cont.)

Students construct meaning from observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences.

Academic Expectations	Content/Process	
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)		**Listening**
		Students will
	Entry	• interpret and apply meaning from listening.
		• identify and apply appropriate listening behaviors in various situations and purposes.
		• apply listening, speaking, and observing skills for a variety of purposes.
	Exit	
		Observing
		Students will
	Entry	• use senses to understand the world around them.
		• observe for a specific purpose.
		• construct meaning from observing nonverbal cues.
	Exit	
		Speaking
		Students will
	Entry	• engage in informal communication.
		• practice appropriate verbal behaviors for a variety of audiences, purposes, and situations.
		• apply appropriate nonverbal techniques (e.g., gestures, facial expressions) to enhance communication.
		• present information using appropriate delivery techniques (e.g., rate, tone, volume).
	Exit	

Primary English/Language Arts (cont.)

Academic Expectations	Content/Process	
		Responses
		Students will
	Entry	
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)		• apply speaking-to-learn (e.g., think-aloud, questioning) and speaking-to-demonstrate-learning (instructional conversations, cooperative groups) strategies to internalize understanding and to respond to others (additional supporting Academic Expectation 6.3).
		
	Exit	

Primary English/Language Arts (cont.)

Students independently and collaboratively use a variety of resources, methods, and research tools to access ideas and information to learn and to communicate ideas for specific purposes.

Academic Expectations	Content/Process	
Inquiry (1.1)	**Entry**	**Pose Questions** **Students will** • pose questions to obtain ideas and information for authentic purposes.
	Exit	
	Entry	**Research Tools** **Students will** • identify research tools. • use appropriate research tools to locate information and ideas for authentic tasks.
	Exit	

Primary English/Language Arts (cont.)

Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes.

Academic Expectations	Content/Process	
Technology as Communication (1.16)		**Access Information**
		Students will
	Entry	• explore and use technology to access ideas and information for authentic tasks.
	Exit	
		Communication
		Students will
	Entry	• explore and use technology as a means of communication.
	Exit	

Primary Health Education

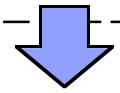
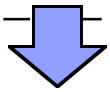
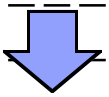
Primary Health Education

Students in the primary health education program learn the basics of good nutrition and personal health habits, sound safety practices, violence avoidance, and the use of refusal skills. Primary health education helps students to learn the basic practices that contribute to their health safety and well-being. Health education at this level enables students to acquire the knowledge, skills, and practices that should be a part of their daily routine throughout life.

Charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. A blank box indicates that no new content or skill is introduced at that level; whereas, an arrow crossing a dotted line shows that the content or skill continues across multiple levels. The vertical column on each chart contains Kentucky's academic expectations to be taught in primary health education. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

In addition to specifying health education content, bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning.

Primary Health Education

Academic Expectations		Content/Process
Individual Well-Being (2.29)		**Students will**
	Entry	• become aware of the concept of responsibility to oneself (e.g., do your best, be the best you can be).
		• recognize the concept of an individual's responsibility to others.
		• demonstrate responsibility to oneself and others.
		
		• become aware of the role rules play in the effective functioning of groups. • recognize that growth and development are unique to each individual.
	Exit	• become aware of conflict resolution and communication strategies.
Consumer Decisions (2.30)		**Students will**
	Entry	• become aware of what it means to be a consumer.
		• explain differences between wants and needs and provide examples.
		
		• select products and services that meet personal needs.
		• become aware of the concept of saving money. • describe community services used by families.
	Exit	• explain where products and services are available in the community. • recognize misleading media and advertising techniques.
Personal Wellness (2.31)		**Safety Rules and Procedures**
		Students will
	Entry	• identify and practice school safety rules (e.g., playground, bus, classroom) and school safety procedures (e.g., tornado drills, fire drills, earthquake drills). • identify and practice traffic safety rules (e.g., crossing streets, riding bikes, helmets, seat belts).
		• describe and use personal safety strategies. • determine procedures and practices for obtaining needed emergency assistance and information (e.g., fire and police departments, poison control, ambulance service, 911).
		• identify basic health habits (e.g., handwashing, care of teeth and eyes, covering coughs and sneezes, sun protection) which affect self and others and prevent spread of disease.
		• practice good habits of personal grooming and cleanliness. • describe the importance of regular visits to health care providers.
	Exit	

Primary Health Education (cont.)

Academic Expectations	Content/Process	
		Nutrition
Personal Wellness cont. (2.31)	**Entry**	**Students will**
		• identify basic food groups.
		• identify foods in basic food groups. • classify foods according to identified food groups.
		• describe and select healthy snack foods.
		• describe food guide pyramid and understand its significance.
	Exit	• determine the impact of diet on growth and development.
Mental Wellness (2.32)	**Entry**	**Students will**
		• define friendship. • explain ways to develop friendships.
		• identify what they like about themselves and others. • identify unique characteristics of others. • discuss various types of emotions (e.g., happy, sad).
		• determine how to express emotions appropriately.
		• examine decision-making strategies.
		• demonstrate respect for others.
	Exit	• identify purposes and proper uses of medications. • describe risks associated with the use of non-medicinal drugs.
Community Resources (2.33)	**Entry**	**Students will**
		• become aware of appropriate community agencies (e.g., police department, fire department, health department, mental health provider) and the health and safety services they provide.
		• identify community guidelines that promote healthy environments.
		• describe community activities (e.g., recycling, litter control) that promote healthy environments.
		• identify health providers and the services they provide in the community.
	Exit	

Primary Mathematics

Primary Mathematics

The content in the primary level course charts is directly aligned with Kentucky's academic expectations. Each content chart presents the topics that are fundamental to mathematical literacy and mathematical power for all primary level students. The content statements are organized under common topic headings and can be related to other statements. An integral part of the learning process is the systematic review of earlier concepts and procedures in which students use previously learned skills to develop proficiency with more advanced concepts. Furthermore, the primary level mathematics program includes active, hands-on work with concrete materials and appropriate technologies.

Primary level problem solving, mathematical communication, connections, and mathematical reasoning should be a part of the mathematics curriculum. The use of these techniques enhances and extends students' arithmetic skills. Accuracy is an integral part of the mathematics program.

Problem solving involves developing and applying strategies to problems from everyday and mathematical situations and evaluating the solutions relative to the original problem situation.

Mathematical communication includes manipulatives (concrete materials), visual representations, and diagrams that relate language to mathematical symbols in speaking, reading, writing, and listening.

Mathematical connections include
- understanding how one concept relates to other concepts and procedures (e.g., the link between fractions and decimals)
- understanding how one major math topic relates to another (e.g., the link between geometry and measurement)
- understanding how a mathematical topic relates to other disciplines (e.g., the link between statistics and social studies)

Mathematical reasoning includes recognizing patterns and relationships and using models, known facts, and mathematical properties to explain and justify thinking.

The charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. A blank box indicates that no new content or skill is introduced at that level; whereas, an arrow crossing a dotted line shows that the content or skill continues across multiple levels. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

In addition to specifying mathematics content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning.

Primary Mathematics

Primary level mathematics programs address Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate knowledge. Students enter at different stages in the continuum. They progress through the remaining six stages using problem solving, communication, connections, and reasoning.

Academic Expectations	Content/Process				
	Problem Solving	Communication	Connections	Reasoning	
Numbers, Integers & Place Value (2.7, 2.8, 2.12)		**Students will**			
	Entry	• read, write, count, and model whole numbers, 0-5. • order groups of objects according to quantity. • explore appropriate estimation procedures.			
		• read, write, count, and model whole numbers, 0-10. • order and compare numbers from 0-10, using physical models. • explore appropriate estimation procedures.			
		• read, write, count, and model whole numbers, 0-20, developing place value for ones and tens. • order and compare numbers from 0-20, using physical models. • explore appropriate estimation procedures.			
		• read, write, count, and model whole numbers, 0-100, developing place value for hundreds. • order and compare numbers from 0-100, introducing the symbols (<, >, =). • explore multiples, skip counting by twos (odd, even). • count backwards by ones. • explore appropriate estimation procedures.			
		• read, write, and model whole numbers, 0-1,000, understanding place value for thousands. • order and compare numbers from 0-1,000. • understand the relative magnitude of whole numbers from 0-1,000 (e.g., describe a real world situation in which 50 is big/small amount). • explore multiples, skip count by fives and tens. • explore appropriate estimation procedures.			
	Exit	• read, write, and model whole numbers, 0-10,000, developing place value for ten thousands. • order and compare numbers from 0-10,000. • understand the relative magnitude of whole numbers from 0-10,000. • explore appropriate estimation procedures.			

Primary Mathematics (cont.)

Academic Expectations	Content/Process				
		Problem Solving	**Communication**	**Connections**	**Reasoning**
Fractions & Decimals (2.7, 2.8, 2.12)	**Entry**	**Students will**			
		• develop beginning fractional concepts (e.g., dividing an object into two equal parts).			
		• divide an area into thirds and fourths, naming fractional parts.			
		• understand and count unit fractions, such as one-fourth, two-fourths, and three-fourths in real world context. • introduce decimals to represent money.			
	Exit	• expand fraction concepts (e.g., whole to part, part to whole). • use decimals to represent money.			
Number Computation (2.7, 2.8, 2.12)	**Entry**	**Students will**			
		• develop meaning of addition and subtraction using physical objects.			
		• understand addition and develop concept of subtraction using concrete materials.			
		• recognize that a set of objects can be broken into parts in many ways. • understand concepts of subtraction. • explore the concepts of multiplication and division using physical models.			
		• develop part-part-whole relationships using numbers (e.g., 3 + 2 = 5, 1 + 4= 5). • explore addition and subtraction of two-digit numbers using manipulatives. • develop the concept of multiplication and division using physical models.			
		• solve two-digit problems using addition and subtraction with manipulatives and symbols. • explore factor-factor-product (e.g., 2 x 3 = 6) using manipulatives. • relate division facts to multiplication facts using factor-factor-product.			
	Exit	• solve multi-digit addition and subtraction problems that contain numerals and symbols. • develop factor-factor-product using manipulatives. • add common fractions with like denominators using manipulatives. • add and subtract decimals using money.			

Primary Mathematics (cont.)

Academic Expectations	Content/Process				
	Problem Solving	**Communication**	**Connections**	**Reasoning**	
		Students will			
Geometry (2.8, 2.9, 2.12)	**Entry**	• identify, describe, and make geometric figures (e.g., circle, triangle, square, rectangle). • compare the size (larger/smaller) and shape of plane geometric figures.			
		• identify, compare, and contrast two- and three-dimensional shapes and objects (e.g., oval, rhombus, parallelogram, hexagon, trapezoid). • draw two-dimensional shapes.			
		• identify, describe, model, draw, and classify/sort two-dimensional shapes. • identify, describe, model, draw, and classify/sort three-dimensional shapes including spheres, cones, cylinders, rectangular solids, and pyramids. • determine if simple shapes are symmetrical.			
		• explore flips, slides, and turns with physical models. • determine if simple shapes are congruent.			
		• determine lines of symmetry in simple shapes. • identify, describe, and compare three-dimensional shapes according to the number and shape of faces, edges, bases, and angles.			
	Exit	• identify, describe, model, draw, and classify/sort two- and three-dimensional shapes and objects using properties. • identify and describe congruent and symmetrical two-dimensional figures. • identify and draw representations of line segments and angles.			

Primary Mathematics (cont.)

Academic Expectations	Content/Process			
	Problem Solving	**Communication**	**Connections**	**Reasoning**
Measurement (2.8, 2.10, 2.12)	**Entry**	**Students will**		
		• compare and order by size (e.g., large/small). • determine length, weight, and volume with nonstandard units. • identify coins. • relate time to daily activities.		
		• compare and order by size (e.g., large/small) and length/width. • identify coins and bills by value. • tell time to the hour.		
		• compare and order by size (e.g., large/small), length/width, and temperature with nonstandard units. • make combinations of coins and bills to make a given amount. • identify correct symbols for money. • tell time to hour and half-hour.		
		• compare and measure length and weight of familiar objects in nonstandard (e.g., shoe lengths, rocks) and standard units (e.g., inches, pounds). • expand the use of coins and bills to give change for a given amount. • use correct symbols for money. • tell time to quarter hour.		
		• compare and measure size (e.g., large/small), length/width, temperature, and mass with nonstandard and standard units. • compare and order amounts of money using coins and bills. • tell time to the nearest 5 minutes and distinguish between a.m. and p.m. • explore perimeter of regular shapes.		
	Exit	• determine equivalent customary measurements. • make change up to a dollar. • tell time to the nearest minute and determine elapsed time. • find perimeter and explore area of rectangles with manipulatives.		

Primary Mathematics (cont.)

Academic Expectations	Content/Process			
	Problem Solving	**Communication**	**Connections**	**Reasoning**

Probability and Statistics (2.8, 2.12, 2.13)		**Students will**
	Entry	• make a graph using manipulatives. • read data displayed on concrete graph.
		• display data on a pictograph. • read data displayed on pictographs (a display of information using symbols or pictures).
		• display data on a bar graph. • read and compare data on bar graph. • explore chance as illustrated in games and experiences.
		• display data on student invented representations. • read and compare data on student invented graphs. • compare chance (probability) as two separate events (e.g., likely/unlikely outcomes).
		• collect and display data. • read, compare, and interpret student collected data. • explore chance (probability) as two separate events (likely/unlikely outcomes).
	Exit	• pose questions; collect, organize, and display data. • draw simple conclusions based on student investigations. • display data using line plots. • explore basic concepts of probability through simple experiments.
Algebraic Ideas (2.8, 2.11, 2.12)		**Students will**
	Entry	• identify patterns in real life. • reproduce and extend patterns using manipulatives.
		• identify and describe patterns in real life and numerical situations. • create, reproduce, and extend patterns of movements and sounds.
		• identify and describe patterns in real life, numerical, and geometric situations. • create, reproduce, and extend patterns of shapes, objects, movements, and sounds. • solve simple equations (e.g., 1 + 1 = ___).
		• solve simple equations (e.g., ___ - 2 = 7). • explore input-output machines (e.g., function machines).
		• explore unknowns and open sentences to express relations. • use function machines. • recognize, extend, and explain rules orally for a number pattern.
	Exit	• solve function machine tasks. • solve for unknowns and open sentences. • recognize, extend, and explain rules for a number pattern.

Primary Physical Education

Primary Physical Education

Primary level physical education assists in the development of children's motor and fitness skills. Establishing a strong foundation in the primary grades enables students to have a good start toward becoming healthy adults.

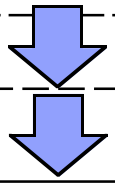
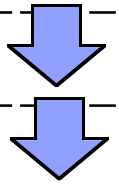
Students in the primary grades learn to move through space with objects and other individuals. Activities and games help develop skillful control, movement patterns, and socially-accepted responses. The relationship of exercise, rest, and nutrition to growth and development are also included.

The charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. A blank box indicates that no new content or skill is introduced at that level; whereas, an arrow crossing a dotted line shows that the content or skill continues across multiple levels. The vertical column on each chart contains Kentucky's academic expectations to be taught. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

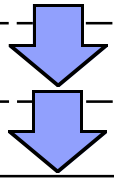
In addition to specifying physical education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning.

All physical education courses taught in the state of Kentucky must be in compliance with P.L. 105-17 and Title IX and shall not include practice for or participation in interscholastic athletics.

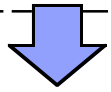
Primary Physical Education

Academic Expectations	Content/Process	
Personal Wellness (2.31)		**Students will**
	Entry	• feel and hear their own heartbeat.
		• perform simple stretching and strengthening exercises.
		• perform a wider variety of stretching and strengthening exercises. • recognize that exercise affects heart rate.
		
	Exit	• perform various stretching, strengthening, and cardiorespiratory exercises and describe their benefits.
Psychomotor (2.34)		**Locomotor and Nonlocomotor**
		Students will
	Entry	• perform a variety of nonlocomotor skills (e.g., push, pull, twist, turn, curl, stretch, balance). • perform a variety of locomotor skills (e.g., walk, run, hop).
		• perform increasingly complex locomotor and nonlocomotor skills with balance, agility, and weight transfer.
		
		• incorporate locomotor and nonlocomotor skills in creative expression of movement, alone and with others. • perform locomotor skills to music.
	Exit	• demonstrate combination movements (e.g., hop and skip, gallop and leap) in playing games or creative play. • perform smooth, varied speed, stop and go, and directional change in locomotor movements.

Primary Physical Education (cont.)

Academic Expectations	Content/Process	
Psychomotor Continued (2.34)	**Manipulative Skills**	
	Entry	**Students will**
		• discover a variety of ways to manipulate objects (e.g., with hands, feet, elbow, head).
		• develop throwing, catching, kicking, and striking skills.
		
		• throw a ball overhand with proper hand and foot position.
	Exit	• develop fundamental skills of throwing, catching, kicking, and striking while developing motor skills (e.g., dribble and shoot relay) for use in games and other activities that lead to more complex games and sports (e.g., basketball).
	Movement Concepts	
	Entry	**Students will**
		• define personal and general space concepts. • balance in different positions (e.g., feet, hands, knees, head).
		• apply concept of time to movement (e.g., from one point to another, fast, slow) and task completion (e.g., placement of objects in a square, circle, bag, box). • experience body control. • explore effort concepts (e.g., fast, slow, hard, soft). • exhibit directional concepts (e.g., left, right, forward, backward) while moving. • use movements expressing shapes and/or sizes.
		• identify intensity levels (e.g., low, moderate, high) of movement. • determine pathways of movements (e.g., curved, zig zag, straight). • demonstrate relationships (e.g., over, under, front and back, side-by-side, leading, following) with other people and objects. • develop balance skills.
		• perform a variety of balance activities. • engage in body extension activities (e.g., near, far).
		• exhibit body control. • become aware of movement concepts (e.g., space awareness, effort, formations that occur between objects and people) within a specified area. • create simple movement sequences using a variety of locomotor and nonlocomotor skills.
	Exit	• use movement patterns to demonstrate concepts of space and effort in relation to locomotor skills. • perform right and left movements. • demonstrate balance skills.

Primary Physical Education (cont.)

Academic Expectations	Content/Process	
Lifetime Activity (2.35)	**Entry**	**Students will**
		• describe how practice helps individuals improve.
		• describe how cooperation is used with partners and small groups. • relate the concept of practice to the importance of learning new skills.
		
		• practice cooperation strategies with partners and small groups. • describe the concept of sportsmanship (e.g., rules, fair play, personal response) in regard to games and activities.
		• demonstrate practice techniques and use feedback to improve skills.
	Exit	• demonstrate cooperation with partners, small groups, or large groups by following rules and practicing fair play.

Primary Science Education

Primary Science

Children's introduction to science will be led by their natural curiosity about the world. Primary students will explore and observe common objects and materials in their environment. They will be actively engaged in many concrete, hands-on experiences with science. Student observations (e.g., similarities and differences) of the physical world, the Earth and sky, and living organisms provide a foundation from which students will develop the ability to do science, develop conceptual understandings about science, learn how science is used, and how science is connected to other things in the world. Most primary students are not yet ready to understand concepts of science that are beyond the concrete level (e.g., cells, water cycle).

Primary level science contains the physical, earth/space, and life science concepts shown in the **conceptual understandings** chart. These concepts will be taught through scientific inquiry and applications and connections. Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link physical, earth/space, and life science concepts to scientific inquiry and applications and connections.

Scientific inquiry is identical to Academic Expectation 2.1: "Students understand scientific ways of thinking and working and use those methods to solve real-life problems." Scientific inquiry is not a standard "scientific method"; rather it includes a variety of types of investigations. Scientific inquiry requires the use of science concepts to design investigations and to develop explanations from the results of those investigations. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are reflected in scientific inquiry.

Scientific applications/connections show science concepts in a variety of contexts to demonstrate that science is relevant to individuals and society. Scientific applications/connections show how science concepts are connected to real life and how science can be used to solve real life problems. Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link science concepts to scientific applications/connections. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are also reflected in scientific applications/ connections.

Content charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. Once skills and concepts are introduced, they should be reinforced and developed throughout the primary years. A blank box indicates that no new content or skill is introduced at that level; whereas, an arrow crossing a dotted line shows that the content or skill continues across multiple levels. Examples in parentheses throughout the document (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Primary Science

Academic Expectations		Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**		**Students will**
	Entry	• ask simple scientific questions that can be answered through observations.
		• use simple equipment (e.g., aquariums), tools (e.g., magnifiers, spoons), skills (e.g., observing, pouring), technology (e.g., video discs), and mathematics in scientific investigations.
		• use evidence (e.g., observations) from simple scientific investigations and scientific knowledge to develop reasonable explanations.
		• design and conduct different kinds of simple scientific investigations.
		• communicate (e.g., speak, draw) designs, procedures, and results of scientific investigations.
	Exit	• question scientific investigations and explanations of other students.
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**		**Physical Science** **Properties of Objects and Materials**
		Students will understand that
	Entry	• properties (e.g., size, shape) of materials can be measured and used to describe, separate, or sort objects.
		• materials can exist in different states and some common materials (e.g., water) can change states.
	Exit	
		Position and Motion of Objects
		Students will understand that
	Entry	• the position and motion of an object can be described (e.g., measured, observed) by comparing it to another object or background.
		• the position and motion of an object can be changed by pushing or pulling.
	Exit	

Primary Science
Physical Science

Academic Expectations		Content/Process
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Entry**	**Light, Heat, Electricity, and Magnetism** **Students will understand that** • magnets attract and repel each other as well as certain kinds of other materials.
	Exit	• electrical currents move through electrical circuits. Electricity in circuits can produce light.
	Entry	**Earth/Space Science** **Properties of Earth Materials** **Students will understand that** • Earth's materials are solids (e.g., rocks, soils), water (e.g., oceans), and gases (e.g., oxygen).
	Exit	• fossils provide evidence about organisms that lived long ago.
	Entry	**Objects in the Sky** **Students will understand that** • the Sun provides the light and heat necessary to maintain the temperature of the Earth.
	Exit	• common objects in the sky (e.g., stars, clouds, airplanes) have properties, locations, and movements that can be observed and described.

Primary Science
Earth/Space Science

Academic Expectations	Content/Process	
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**		**Changes in the Earth and Sky**
	Entry	**Students will understand that**
		• objects in the sky (e.g., Sun, moon) have patterns of movement.
		• weather changes from day to day and over the seasons.
	Exit	
		Life Science **Characteristics of Organisms**
	Entry	**Students will understand that**
		• organisms have basic needs (e.g., air, water, nutrients, light) and can only survive when these needs are met.
		• behavior of individual organisms is influenced by stimuli (e.g., touch, hunger).
		• organisms have different structures that serve different functions. These structures are used to sort organisms into groups.
	Exit	
		Life Cycles of Organisms
	Entry	**Students will understand that**
		• organisms resemble their parents.
		• organisms have life cycles that are different for different organisms.
	Exit	

Primary Science
Life Science

Academic Expectations		Content/Process
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Entry**	**Organisms and their Environments** **Students will understand that** • organisms' patterns of behavior are related to the nature of organisms' environments. There are many different environments (e.g., deserts, rainforests) on Earth that support different types of organisms. • all animals depend on plants for food.
	Exit	
Applications/ Connections **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Entry**	**Students will** • distinguish between natural objects and objects made by humans. • examine the interaction between science and technology. • recognize how science helps to understand characteristics of (e.g., density, size) and changes in populations. • examine how science fosters understanding of issues (e.g., use/misuse, availability, distribution) related to natural resources. • demonstrate how the study of science (e.g., ecology, chemistry) helps explain changes in environments (e.g., pollution).
	Exit	

Primary Social Studies

Primary Social Studies

The social studies program for the primary grades includes essential content from five areas of social studies: government and civics, culture and society, economics, historical perspective, and geography.
The essential content descriptions for the five social studies areas are not course or grade-level descriptions. Rather, they describe a comprehensive and integrated social studies program to be completed during the primary school experience.

Although the social studies program for the primary grades is divided into five areas, each area is designed to interact with the others in an integrated fashion. Because of this integration, students develop broad concepts of social studies. This style of learning reflects the developmental nature of children.

In addition to specifying social studies content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a more comprehensive link between essential content and the skills and abilities important to learning.

The content charts for the primary program are arranged vertically with six developmental levels. Skills or content introduced at each level are listed in the boxes. A blank box indicates that no new content or skill is introduced at that level; whereas, an arrow crossing a dotted line shows that the content or skill continues across multiple levels. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Primary Social Studies

Academic Expectations	Content/Process	
Historical Perspective (2.20)	**Entry**	**Students will**
		• distinguish among past, present, and future, and describe change over time.
		• understand how and why (cause-and-effect) events occurred in the community, state, or nation.
		• differentiate among fact, fiction, and opinion in relating historical events.
		• describe and illustrate historical concepts or events through symbols, slogans, songs, poems, and passages.
	Exit	• understand simple historical time lines and use primary and secondary sources and artifacts to examine the past.
Geography (2.19)	**Entry**	**Students will**
		• use tools (e.g., maps, globes, charts, graphs, compasses) to understand surroundings.
		• visualize where things (e.g., schools, neighborhoods) are located.
		• recognize physical and human characteristics of places and regions.
		• recognize that people depend on, adapt to, or modify the environment to meet basic needs.
	Exit	• recognize factors that influence human movement and settlement.
Economics (2.18)	**Entry**	**Students will**
		• recognize fundamental economic concepts (e.g., wants and needs, making choices, money as a means of exchange).
		• recognize fundamental economic concepts (e.g., goods and services, supply and demand, scarcity, and opportunity cost).
		• recognize different roles of family, workers, banks, and businesses in economic systems.
		• understand that consumer wants influence the production and consumption of goods and services.
		• recognize skills used in the decision-making process in order to make informed economic decisions.
	Exit	• explore the world of work and recognize relationships among work, wages, purchasing power, and lifestyle.

Primary Social Studies (cont.)

Academic Expectations	Content/Process	
Government and Civics (2.14 & 2.15)	**Entry**	**Students will**
		• recognize and understand the need for rules within the home and school setting.
		• understand and begin to apply rights and responsibilities in relation to the community.
	Exit	• begin to understand the basic purpose of government and how citizen participation can affect government.
Culture and Society (2.16 & 2.17)	**Entry**	**Students will**
		• recognize language, music, art, dress, food, literature, and folktales as elements of culture.
		• understand that diverse groups celebrate heritage and culture in a variety of ways.
		• recognize the roles individuals have in various groups.
		• understand how human needs are met through social groups and institutions.
	Exit	• examine concepts of stereotyping, prejudice, and discrimination.

Intermediate Education

Intermediate Arts and Humanities

Intermediate Arts and Humanities

The content for arts and humanities is aligned with Kentucky's academic expectations. This content provides students with a grounding in the arts and enables them to appreciate their cultural and historical heritage. Included in the arts are dance, music, theatre, and visual arts. The processes of creating, performing, and responding are woven throughout all content and topic areas.

The **dance** strand provides students with opportunities to develop movement skills, to explore dance elements, and to understand that dance is used as a means of communication and self-expression. Through dance, students begin to understand and appreciate their own culture and respect dance as a part of the heritage of other cultures.

In the **music** strand, students begin to understand how music elements are used and combined to create music. The course focuses on the skills of listening, singing, playing, moving, reading, and creating. Students develop an understanding that music performance and composition is a way to express thoughts, feelings, and ideas.

Through the **theatre** content, students understand the elements of drama. Students develop their abilities to perform and to express their understanding of the world through dramatic productions. In addition, students broaden their knowledge of other cultures.

Visual arts study provides students with opportunities to use a variety of media, to gain familiarity with the visual elements and principles of design, and to create art works that serve a variety of purposes. As students examine their own works and those of others, they develop an understanding that visual art works are expressions of one's thoughts, feelings, and ideas.

Through the study of the elements and skills of each art form (dance, music, theatre, visual art) students begin to understand and develop an appreciation of their own cultures, cultures of others and how place and time has influenced artistic expression.

Students also learn that although the various arts disciplines have unique qualities, they share many properties and connect with all other subjects in the curriculum. Arts specialists and generalists work together to provide instruction that allows students to acquire the necessary knowledge and skills for participating in, responding to, and appreciating the arts.

In addition to specifying arts and humanities content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a more comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The content charts included in this document for the intermediate levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

Grade 4 Arts and Humanities

Academic Expectations	Content/Process
Visual Arts (1.13, 2.22, 2.26)	**Elements of Arts and Principles of Design** **Students will** • use appropriate terminology to describe the functions of the elements of art (line, shape, color, form, texture, space, value) and principles of design (e.g., balance, emphasis, pattern). • create works of art using the elements of art and principles of design. • compare and contrast visual works of art. **Processes and Media** **Students will** • use a variety of media (crayon, pencil, paint, fabric, yarn, clay, paper, paper-mache) and art processes (e.g., drawing, painting, collage, weaving, pottery, sculpture) to produce two- and three-dimensional works of art. • describe how media and processes are used for creating a variety of art works. **Historical and Cultural Context** **Students will** • use appropriate terminology to describe art works from different cultures, periods, and styles. • recognize that artists express themselves in different styles. • identify various purposes for creating works of art. • describe the role of visual arts in different cultures.
Music (1.14, 2.22, 2.26)	**Elements of Music** **Students will** • use elements of music (rhythm, melody, form, timbre, harmony, tempo, dynamics) while performing, singing, instrument playing, moving, listening, reading, writing, and creating. • recognize and develop music elements. • use appropriate terminology to describe the purpose of music elements. • use developmentally appropriate performance techniques, practices, and music elements to communicate ideas and emotions. **Historical and Cultural Context** **Students will** • use appropriate terminology to describe music of diverse cultures, periods, and styles. • examine effects of time, place, and personality on music and performance. • perform music from diverse cultures, periods, and styles.

Grade 4 Arts and Humanities (cont.)

Academic Expectations	Content/Process
Dance (1.15, 2.22, 2.26)	**Elements of Dance** **Students will** • demonstrate the ability to perform a dance alone, with a partner, and in a small group using the three elements of movement (space, time, force). • demonstrate the ability to recognize the relationship between the elements of dance and the expressive qualities of movement (e.g., ideas, emotions). • describe elements of dance and explain how dance differs from other physical movements. • create a movement sequence using the elements of dance. **Dance Movements and Forms** **Students will** • explore simple dances with a beginning, middle, and end using a combination of locomotor (walk, run, hop, jump, leap, skip, slide, gallop) and nonlocomotor (e.g., bend, stretch, twist, swing) movements. • create movement sequences that include repetition and variety using different locomotor and nonlocomotor movements. **Historical and Cultural Context** **Students will** • participate in dance activities by performing traditional folk dances, square dances, and ethnic dances (e.g., Native American, African-American) • discuss elements of dance performances seen in various media (e.g., theatre, film, television). • observe performances of classmates and professional dancers. • recognize the value of work performed by others. • recognize that dance is a way of expressing the culture and history of a particular group of people. • recognize the three purposes of dance (ceremonial, recreational, artistic) in society. • identify specific cultures, purposes, and styles of dances.
Drama (2.22-2.26)	**Elements of Drama** **Students will** • use appropriate terminology to discuss elements of drama such as plot, character, visuals (e.g., scenery, costumes, props, make-up), and acting (e.g., voice, expression, diction, projection). • create simple dramatic works using the elements of drama. • demonstrate through performance various types of drama (e.g., improvisation, mimicry, pantomime, role playing, storytelling). **Historical and Cultural Context** **Students will** • describe how dramatic works reflect specific cultures, periods, and styles. • compare and contrast dramatic works from diverse cultures, periods, and styles.

Grade 5 Arts and Humanities

Academic Expectations	Content/Process
Visual Arts (1.13, 2.22, 2.26)	**Elements of Arts and Principles of Design** **Students will** • express ideas, images, or patterns utilizing elements of art (line, shape, color, form, texture, space, value) and principles of design (e.g., balance, emphasis, pattern). • analyze how elements of art and principles of design are used in a variety of art works. • reflect on, interpret, and revise own works of art and/or works of others. • use appropriate terminology to evaluate personal artistic creations and those of others. **Processes and Media** **Students will** • use a variety of media (e.g., crayon, pencil, paint, fabric, yarn, clay, paper, paper-mache), and art processes (e.g., drawing, painting, collage, weaving, pottery, sculpture) to produce two- and three-dimensional works of art. • describe how media and processes are used for creating a variety of art works. • analyze how responses to personal works of art and the works of others are influenced by various media and processes. **Historical and Cultural Context** **Students will** • examine the effects of time, place, and purpose on art forms. • investigate and communicate the differences and commonalities in visual artistic expressions from diverse cultures and periods. • demonstrate through products forms of art from diverse cultures. • create products that demonstrate forms of art from diverse cultures.
Music (1.14, 2.22, 2.26)	**Elements of Music** **Students will** • express elements of music (rhythm, melody, form, timbre, harmony, tempo, dynamics) through singing, instrument playing, moving, listening, reading, writing, and creating. • analyze how elements of music are used in performing, listening to, and/or creating music. • create music with developmentally appropriate performance techniques, practices, and music elements to communicate ideas and emotions. • create a simple composition using the elements of music. **Historical and Cultural Context** **Students will** • compare and contrast music of diverse cultures, periods, and styles using appropriate terminology. • create products to demonstrate music from diverse cultures, periods, and styles.

Grade 5 Arts and Humanities (cont.)

Academic Expectations	Content/Process
Dance (1.15, 2.22, 2.26)	**Elements of Dance** **Students will** • demonstrate the ability to perform a dance alone, with a partner, and in a small group using the three elements of movement (space, time, force). • use appropriate terminology to analyze ideas or emotions expressed through a movement sequence. • use appropriate terminology to describe how two examples of dance are similar and different. • create a dance that uses the elements of dance. **Dance Movements and Forms** **Students will** • describe how locomotor (walk, run, skip, hop, jump, slide, leap, gallop) and nonlocomotor (e.g., bend, stretch, twist, swing) movements are used to create simple dances. • create and perform in a small group simple dances with a beginning, middle, and end using a combination of locomotor and nonlocomotor movements. **Historical and Cultural Context** **Students will** • participate in dance activities by performing traditional folk dances, square dances, and ethnic dances (e.g., Native American, African American). • describe dances of different cultures, purposes, and styles. • analyze personal creations and those of others using appropriate vocabulary. • express openness to differences and commonalities among diverse cultures, purposes, and styles. • demonstrate knowledge of the origin and history of a variety of dances.
Drama (2.22-2.26)	**Elements of Drama** **Students will** • analyze elements of drama such as plot, character, visuals (e.g., scenery, costumes, props, make-up), and acting (e.g., voice, expression, diction, projection) in a variety of dramatic works. • collaborate with others to create dramatic works using the elements of drama. • reflect on, interpret, and revise own work and/or works of others. • use appropriate terminology to evaluate personal dramatic creations and those of others. **Historical and Cultural Context** **Students will** • communicate recognition of specific cultures, periods, and styles within dramatic works. • examine the effects of time, place, and personality on dramatic works. • create products or performances to demonstrate drama from diverse cultures. • describe and discuss theatres' roles in and contributions to communities.

Intermediate English/Language Arts

Intermediate English/Language Arts

The intermediate grades English/Language Arts content is aligned with Kentucky's academic expectations. Blended together are the strands of reading, writing, speaking, listening, observing, inquiry, and using technology as a communication tool. Students in grades four and five build on their communication skills from primary, as well as further develop those skills in preparation for their middle school experiences.

The content of intermediate grades English/Language Arts is designed to present a wide range of reading experiences with print and nonprint text for literary, informational, persuasive, and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to write in a variety of forms, and for multiple audiences and purposes. The arts and humanities academic expectations concerning creating (2.22) and appreciating works of art (2.24 and 2.25) are appropriately embedded within the context of reading and writing; however, they are not intended to be the primary focus of English/Language Arts instruction. Speaking, listening, and observing skills are used to communicate information for a variety of authentic purposes, situations, and audiences. The integration of inquiry skills and technology with the other strands allows students to continue to discover and communicate ideas and information. Furthermore, the skills and processes from Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge) are incorporated throughout the content of English/Language Arts.

Each of the five strands begins with a statement in boldface type which describes the general content of that strand. The skills/processes in the bulleted list provide further focus for the minimum content to be covered at each grade level. Statements in boldface type and the bulleted lists must be combined for a complete description of the grade-level content.

The content charts for the intermediate levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Grade 4 English/Language Arts

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students apply appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • understand and respond to a variety of reading materials, making connections to students' lives, to real world issues, and/or to current events (additional supporting Academic Expectation 6.1). • recognize characteristics and elements of different kinds of works. • utilize text features and organizational patterns to interpret transactive reading materials (informational, practical/workplace, and persuasive). • respond to authors' opinions and details used to support those opinions. • select and read materials for enjoyment. • employ reading strategies (e.g., word analysis, re-reading, context clues, pre-reading, raising questions, predicting, drawing conclusions). • use contextual vocabulary and comprehension strategies to understand text.
Academic Expectations	**Content/Process**
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings for a variety of authentic purposes and audiences and in a variety of forms, including personal, literary, transactive and reflective pieces. Students will** • respond to reading, listening, observing, and inquiry through applying writing-to-learn strategies in situations such as journals and graphic organizers and writing-to-demonstrate-learning strategies in situations such as open-response questions and graphic organizers (additional supporting Academic Expectations 1.10, 5.1, 6.3) • use information from technology and other resources to produce writing that develops and supports independent ideas (additional supporting Academic Expectation 5.1). • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) based on personal experiences, reading, listening observing, and/or inquiry (additional supporting Academic Expectation 6.3). • write literary pieces that show an understanding of characteristics of literary works (additional supporting Academic Expectation 5.2). • write personal pieces to communicate ideas. • identify and apply characteristics of effective writing in producing and discussing their own work, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

Grade 4 English/Language Arts (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students construct meaning from observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • recognize the purpose and effectiveness of both formal and informal messages. • prepare and deliver formal presentations individually and/or collaboratively for specific audiences, purposes, and situations (additional supporting Academic Expectation 5.3). • apply listening, speaking, and observing skills to conduct authentic inquiry tasks (additional supporting Academic Expectation 5.1).
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information to learn and to communicate ideas for specific purposes. Students will** • identify information and resources needed to address student-developed questions. • take notes from research. • use technology as a research tool to explore and gather ideas and information for authentic tasks.
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use technology to access ideas and information. • explore technology as a means of communication.

Grade 5 English/Language Arts

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/ workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • identify meaning from a variety of reading materials, making connections to students' lives, to real world issues, and/or to current events (additional supporting Academic Expectation 6.1). • recognize characteristics and elements of different kinds of literary works. • identify and apply information contained in directions and forms to complete authentic tasks. • employ reading strategies to locate and apply ideas and information for inquiry projects and other authentic tasks. • select and read materials for enjoyment. • respond to a variety of reading materials by summarizing, identifying sequence, generalizing, and comparing/contrasting. • use vocabulary and comprehension strategies in context, as well as technology, to understand text.
Academic Expectations	**Content/Process**
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings for a variety of authentic purposes and audiences and in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • respond to reading, listening, observing, and inquiry through applying writing-to-learn strategies in situations such as journals and graphic organizers and writing-to-demonstrate-learning strategies in situations such as open-response questions and graphic organizers (additional supporting Academic Expectations 1.10, 5.1, 6.3) • use information from technology and other resources to produce writing that develops and supports independent ideas and contains source citations (additional supporting Academic Expectation 5.1). • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) which develop ideas for authentic audiences and purposes (additional supporting Academic Expectation 6.3). • write literary pieces which show an understanding of characteristics of literary works (additional supporting Academic Expectation 5.2). • write personal pieces, including essays, which reflect on personal experience and make connections to real-world issues (additional supporting Academic Expectation 6.3). • apply characteristics of effective writing in their own works and recognize them in works of others, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

Grade 5 English/Language Arts (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students construct meaning from observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • adjust communication based on audience, purpose, and situation. • prepare and deliver formal presentations individually and/or collaboratively for specific audiences, purposes, and situations, with and without technology and visual aids (additional supporting Academic Expectations 5.3). • use appropriate delivery techniques including correct and appropriate language, nonverbal cues, and visual aids. • apply listening, speaking, and observing skills to conduct and to respond to authentic inquiry tasks (additional supporting Academic Expectation 5.1).
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information to learn and to communicate ideas for a specific purpose. Students will** • develop questions to obtain ideas and information for authentic tasks. • identify types of resources for a variety of tasks and select resources appropriate for specific tasks (additional supporting Academic Expectation 5.4). • explore research tools to gather ideas and information for a variety of authentic tasks. • identify sources by title and author in written and oral products.
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use technology to access ideas and information. • explore technology as a means of communication.

Intermediate Health Education

Intermediate Health Education

Intermediate health education builds upon the knowledge, skills, and practices learned in the primary health education program. Continued acquisition of health knowledge enables students to make a smooth transition to the middle grades and prepares them to assume more responsibility for their own health.

Students in intermediate health education focus on good nutrition, health and safety practices, decision-making skills, disease prevention, and benefits of exercise. Other topics included are community resources, prevention of violence, and substance abuse.

The vertical column on each chart contains Kentucky's academic expectations to be taught in intermediate health education. In addition to specifying health education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The content charts included in this document for the intermediate levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

Grade 4 Health Education

Academic Expectations	Content/Process
Individual Well-Being (2.29)	**Students will** • explain and exhibit responsibility to oneself (e.g., do your best, be the best you can be). • describe and practice responsibility to others. • demonstrate respect for others. • examine the role of rules for the effective functioning of groups. • distinguish between goal setting and achievement. • recognize that physical, emotional, and social changes are a normal part of growth and development. • explain how individuals and groups are interdependent. • explore strategies for dealing with conflict and anger.
Consumer Decisions (2.30)	**Students will** • evaluate media and advertising techniques. • describe the differences between needs and wants. • determine ways in which goods and services used by families impact the environment. • select planning and saving strategies for specific purchases.
Personal Wellness (2.31)	**Students will** • identify and practice good personal health habits (e.g., washing hands, brushing and flossing teeth). • use good health habits that prevent the spread of diseases. • follow school safety rules (e.g., playground, bus, classroom). • practice school safety procedures (e.g., tornado, fire, earthquake drills). • adhere to traffic safety rules (e.g., crossing streets, riding bikes). • use personal safety strategies (e.g., when to say no). • demonstrate procedures for basic emergency assistance. • use food guide pyramid to identify food groups and appropriate servings as well as to plan nutritious snacks. • recognize how food affects physical growth and development.
Mental Wellness (2.32)	**Students will** • examine positive and negative consequences of choices. • identify purposes and proper uses of medications. • identify non-medicinal drugs and the risks of taking such drugs. • analyze situations that cause stress and develop ways to manage stress. • develop an awareness of personal rights and responsibilities. • develop decision-making strategies.
Community Services (2.33)	**Students will** • identify roles and responsibilities of health-care workers in schools and communities. • access community-sponsored agencies that maintain and promote health and safety. • identify agencies that protect the environment.

Grade 5 Health Education

Academic Expectations	Content/Process
Individual Well-Being (2.29)	**Students will** • demonstrate responsibility to oneself and others. • apply rules in groups and determine how their application enables groups to function effectively. • demonstrate how individuals and groups are interdependent. • determine unsafe or threatening situations and procedures for dealing with them. • apply conflict resolution strategies.
Consumer Decisions (2.30)	**Students will** • analyze differences between needs and wants and provide examples. • apply decision-making strategies when buying products based on price, features, and quality. • practice planning and saving strategies for specific purchases.
Personal Wellness (2.31)	**Students will** • describe the impact of diet, exercise, and rest on health and disease prevention. • practice good health habits (e.g., washing hands, brushing and flossing teeth, bathing, sun protection) and determine how they affect self and others. • describe how good nutrition helps develop healthy individuals. • examine food guide pyramid to determine appropriate servings and plan simple menus. • identify health and safety hazards at home, school, and play. • describe safe traffic/transportation practices. • explain and exhibit personal safety strategies. • demonstrate procedures for basic emergency assistance.
Mental Wellness (2.32)	**Students will** • analyze positive and negative consequences of choices and actions. • examine purposes and proper uses of medicines. • examine risks associated with the use of non-medicinal drugs. • apply stress management strategies.
Community Services (2.33)	**Students will** • identify governmental health and safety regulations. • describe and access health and safety services that agencies (e.g., health department, fire department, police department) provide to the community. • identify community guidelines (e.g., animal control, sanitation, immunization) that promote healthy environments.

Intermediate Mathematics

Intermediate Mathematics

Content in the intermediate level course mathematical charts is directly aligned with Kentucky's academic expectations. Each content chart presents the topics that are fundamental to mathematical literacy and mathematical power for all intermediate level students. Content statements are organized under common topic headings for fourth and fifth grades, and each statement can be related to other statements. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Systematic review of earlier concepts and procedures is also an integral part of the intermediate program. Features of the intermediate level mathematics programs include active, hands-on work with manipulatives (concrete materials) and appropriate technologies.

Intermediate level problem solving, mathematical communication, connections, and mathematical reasoning should be a part of the mathematics curriculum. Accuracy is an integral part of the mathematics program.

Problem solving includes developing and applying strategies to problems from everyday and mathematical situations and evaluating the solutions relative to the original problem situation.

Mathematical communication includes concrete materials, visual representations, and diagrams that relate language to mathematical symbols in speaking, reading, writing, and listening to mathematical ideas.

Mathematical connections include
- relating concepts to other concepts and procedures (e.g., fraction, decimal),
- relating concepts of one mathematical topic to another (e.g., geometry, measurement),
- relating concepts of a mathematical topic to other disciplines (e.g., statistics, social studies).

Mathematical reasoning includes recognizing patterns and relationships and using models, known facts, and mathematical properties to explain and justify thinking.

Content charts included in this document for the intermediate levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. Schools have the opportunity to create integrated, interdisciplinary, and multidisciplinary programs.

Grade 4 Mathematics

This chart lists the concepts that should be included in intermediate level math courses. Intermediate level mathematics programs address Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate knowledge.

Academic Expectations	Content/Process			
	Problem Solving	**Communication**	**Connections**	**Reasoning**
Numbers, Integers & Place Value (2.7, 2.8, 2.12)	**Students will** • read, write, and model whole numbers from 0 to 1,000,000, developing place value for hundred thousands and millions. • order and compare numbers to 1,000,000. • understand the relative magnitude of whole numbers to 1,000,000. • determine factors/multiples of a whole number.			
Fractions & Decimals (2.7, 2.8, 2.12)	**Students will** • compare unit fractions (e.g., numerator of 1) using manipulatives. • investigate multiple representations of equivalent fractions (e.g., 1/2 = 3/6) with manipulatives. • read, write, and identify decimals through one-thousandths with manipulatives. • develop equivalent relationships between common fractions, decimals, and whole numbers (e.g., 1/2 = 0.5, 4/2 = 2, 2 = 2.0). • explore appropriate estimation procedures.			
Number Computation (2.7, 2.8, 2.12)	**Students will** • understand and apply computational procedures for adding, subtracting, multiplying, and dividing whole numbers using memorized basic facts. • add and subtract fractions with common denominators using manipulatives and/or diagrams. • add, subtract, multiply, and divide whole numbers.			
Geometry (2.8, 2.9, 2.12)	**Students will** • analyze structures of geometric figures (e.g., points, rays, lines, segments, perpendicular lines, parallel lines, angles). • investigate geometric relationship (e.g., similarity, congruence) through manipulatives and drawings. • compare and explore non-standard units for measuring angles.			

Grade 4 Mathematics (cont.)

Academic Expectations	Content/Process			
	Problem Solving	**Communication**	**Connections**	**Reasoning**
Measurement (2.8, 2.10, 2.12)	**Students will** • relate time to days, weeks, months, and years. • add and subtract time. • read and record temperatures to the nearest degree. • measure and find area and perimeter of a rectangle. • measure and find perimeter of regular/irregular shapes; and measure and find the area of rectangle. • exchange units (e.g., linear, volume, mass) within a measurement system (e.g., 2 feet = 24 inches).			
Algebraic Ideas (2.8, 2.11, 2.12)	**Students will** • compare and contrast number patterns. • explore variables and solve equations using variables. • formulate rules for number relationships. • graph points on a number line. • represent and describe relationships through the use of variables, ordered pairs, lists in tables, plots on graphs, and patterns.			
Probability & Statistics (2.8, 2.12, 2.13)	**Students will** • explore circle graphs. • choose appropriate means to collect and represent data. • explore line graphs to show change over time. • pose questions, collect, organize, and display data. • draw conclusions based on data. • make predictions to determine the fairness of possible outcomes of simple probability experiments using a variety of appropriate manipulatives. • use counting techniques and/or tables to explore probability experiments.			

Grade 5 Mathematics

This chart lists the concepts that should be included in intermediate level math courses. Intermediate level mathematics programs address Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate knowledge.

Academic Expectations	Content/Process			
	Problem Solving	**Communication**	**Connections**	**Reasoning**
Numbers, Integers & Place Value (2.7, 2.8, 2.12)	**Students will** • read, write, and model whole numbers from 0 to 100,000,000, developing place value for ten millions and one hundred millions. • order and compare numbers to 100,000,000. • use factors to determine prime and composite numbers. • determine least common multiples. • explore appropriate estimation procedures.			
Fractions & Decimals (2.7, 2.8, 2.12)	**Students will** • compare and apply the relative sizes of common and mixed fractions. • investigate multiple representations of equivalent fractions (e.g., 1/2 = 3/6, mixed numbers 1 1/2 = 3/2) with manipulatives, drawings, and fractional notation. • read, write, and identify decimals through ten-thousandths. • explore appropriate estimation procedures.			
Number Computation (2.7, 2.8, 2.12)	**Students will** • add and subtract simple fractions with common denominators using manipulatives or symbolic notation. • add and subtract decimals to hundredths using manipulatives or symbolic notation. • explore appropriate estimation procedures.			
Geometry (2.8, 2.9, 2.12)	**Students will** • identify and model basic two- and three-dimensional shapes by appearance and in different orientations (i.e., turn models different ways). • measure and construct angles to the nearest degree. • classify angles as acute, obtuse, or right.			
Measurement (2.8, 2.10, 2.12)	**Students will** • use charts and tables to determine time schedules and work with time zones. • determine area and perimeter of triangles and rectangles. • relate units (e.g., linear, volume, mass) within a measurement system (e.g., 125 cm = 1 m 25 cm).			

Grade 5 Mathematics (cont.)

Academic Expectations	Content/Process			
	Problem Solving	**Communication**	**Connections**	**Reasoning**
Algebraic Ideas (2.8, 2.11, 2.12)	**Students will** • create, recognize, extend, find, and write rules for number patterns. • explore variables and solve equations using variables. • generalize a rule for ordered pairs.			
Probability & Statistics (2.8, 2.12, 2.13)	**Students will** • develop meaning and interpretation of arithmetic mean (average) for numerical data. • pose questions; collect, organize, display data; and choose an appropriate way to collect and represent data. • use counting techniques, tree diagrams, and tables to explore probability experiments. • explore how sample size affects the reliability of the outcome. • make predictions. • find mean, median, mode, and range for a set of data.			

Intermediate Physical Education

Intermediate Physical Education

The intermediate physical education program continues the development and refinement of motor skills and their application to various games, sports, and other physical activities. Defining fitness skills and building positive attitudes toward lifetime physical fitness are some benefits derived from participation in intermediate physical education programs.

Students in intermediate level physical education develop and refine movement patterns, socially acceptable behavior, and sportsmanship through participation in activities and games. They also learn the relationship between exercise, rest, and nutrition to growth and development.

The vertical column on each chart contains Kentucky's academic expectations to be taught. In addition to specifying physical education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

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All physical education courses taught in the state of Kentucky must be in compliance with P.L. 105-17 and Title IX and shall not include practice for or participation in interscholastic athletics.

Grade 4 Physical Education

Academic Expectations	Content/Process
Personal Wellness (2.31)	**Students will** • identify benefits of regular participation in physical activity. • exercise to improve strength, fitness, and wellness. • monitor pulse rate. • demonstrate cardiorespiratory endurance. • demonstrate stretching exercises. • recognize benefits of participation in school and community recreational activities.
Psychomotor (2.34)	**Students will** • perform fundamental skills (e.g., throwing, catching, kicking, striking, jumping, dribbling) while improving speed and accuracy. • develop multi-combination of movements required for successful involvement in sports and physical activities. • develop and refine movement patterns using locomotor (e.g., walk, run, hop) and nonlocomotor (e.g., push, pull, twist, turn, curl, stretch, balance) skills and manipulatives. • demonstrate proficiency in a variety of movement skills. • apply movement strategies in various games and sports.
Lifetime Activity (2.35)	**Students will** • demonstrate cooperation with partners in small and large groups. • practice to improve skills. • apply the concept of sportsmanship (e.g., complying with rules, responding appropriately) in games, sports, and physical activities.

Grade 5 Physical Education

Academic Expectations	Content/Process
Personal Wellness (2.31)	**Students will** • explain the relationship of exercise to fitness and wellness. • explain concepts of muscular strength and endurance, flexibility, and cardiorespiratory endurance. • evaluate their own progress toward fitness goals using appropriate instruments (e.g., stopwatch, tape measure). • perform stretching, strengthening, and cardiorespiratory exercises.
Psychomotor (2.34)	**Students will** • improve competency and consistency in performing locomotor (e.g., walk, run, hop) and nonlocomotor (e.g., push, pull, twist, turn, curl, stretch, balance) skills in games and sports. • demonstrate movement concepts as they are used in various games and activities (e.g., space awareness, effort, relationship that occurs between objects and individuals). • exhibit motor skills with fundamental locomotor movement (e.g., walk, run, hop) in the performance of games and sports. • create and perform a dance as a member of a small or large group.
Lifetime Activity (2.35)	**Students will** • refine practice techniques to achieve consistency for a variety of physical activities. • demonstrate sportsmanship (e.g., complying with rules, responding appropriately) in games and sports activities. • investigate the benefits of participation in leisure, recreational, and competitive physical activity.

Intermediate Science

Intermediate Science

The emphasis on minds-on, concrete, hands-on experiences will continue for intermediate students. The abstract concepts of science (e.g., atoms and chemical reactions, solar system) that appear at higher grade levels will be developed from these concrete experiences. Intermediate students will develop more specific descriptions of the simple observations made in primary of the physical world, the Earth and sky, and living organisms. They will improve their descriptions by including measuring and recording results. Intermediate students will have the ability to do science, begin to understand science concepts, know that science is useful, and know how science is connected to their world.

Intermediate level science contains the physical, earth/space, and life science concepts shown in the **conceptual understandings** chart. These concepts will be taught through scientific inquiry and applications and connections. Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link physical, earth/space, and life science concepts to scientific inquiry and applications and connections.

Scientific inquiry is identical to Academic Expectation 2.1: "Students understand scientific ways of thinking and working and use those methods to solve real-life problems." Scientific inquiry is not a standard "scientific method"; rather it includes a variety of types of investigations. Scientific inquiry requires the use of science concepts to design investigations and to develop explanations from the results of those investigations. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are reflected in scientific inquiry.

Scientific applications/connections show science concepts in a variety of contexts to demonstrate that science is relevant to individuals and society. Scientific applications/connections show how science concepts are connected to real life and how science can be used to solve real life problems. Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link science concepts to scientific applications/connections. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are also reflected in scientific applications/connections.

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Grade 4 Science

Academic Expectations	Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**	**Students will** • ask simple scientific questions that can be answered through observations combined with scientific information. • use simple equipment (e.g., plant lights), tools (e.g., rulers, thermometers), skills (e.g., describing), technology (e.g., electronic media), and mathematics in scientific investigations. • use evidence (e.g., descriptions) from simple scientific investigations and scientific knowledge to develop reasonable explanations. • design and conduct different kinds of simple scientific investigations. • communicate (e.g., graph, write) designs, procedures, and results of scientific investigations. • review and ask questions about scientific investigations and explanations of other students.
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Physical Science** **Properties of Objects and Materials** **Students will understand that** • properties (e.g., size, shape) of materials can be measured and used to describe, separate, or sort objects. • materials can exist in different states and some common materials (e.g., water) can change states. **Position and Motion of Objects** **Students will understand that** • the position and motion of an object can be described (e.g., measured, observed) by comparing it to another object or background. • the position and motion of an object can be changed by pushing or pulling. • sounds are caused by vibrating objects. **Light, Heat, Electricity, and Magnetism** **Students will understand that** • magnets attract and repel each other as well as certain kinds of other materials. • electrical currents move through electrical circuits. Electricity in circuits can produce light, heat, sound, and magnetic effects. • heat can be produced in many ways and can move from one object to another by conduction. • light travels in a straight line until it strikes an object. Light can be reflected, refracted, or absorbed by objects.

Grade 4 Science (cont.)

Academic Expectations	Content/Process
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Earth/Space Science** **Properties of Earth Materials** **Students will understand that** • Earth's materials are solids (e.g., rocks, soils), water (e.g., oceans), and gases (e.g., oxygen). • fossils provide evidence about organisms that lived long ago. • Earth's materials have different physical (e.g., capacity to retain water) and chemical (e.g., ability to support plants) properties and provide resources that humans use. **Objects in the Sky** **Students will understand that** • the Sun provides the light and heat necessary to maintain the temperature of the Earth. • common objects in the sky (e.g., stars, clouds, airplanes) have properties, locations, and movements that can be observed and described. **Changes in the Earth and Sky** **Students will understand that** • objects in the sky (e.g., Sun, moon) have patterns of movement. • weather changes from day to day and over the seasons. Weather can be described by observing and measuring temperature, wind direction and speed, and precipitation. • Earth's surface changes are due to slow (e.g., weathering) and rapid (e.g., volcanic eruptions) processes.
	Life Science **Characteristics of Organisms** **Students will understand that** • organisms have basic needs (e.g., air, water, nutrients, light) and can only survive when these needs are met. • behavior of individual organisms is influenced by stimuli (e.g., touch, hunger). • organisms have different structures that serve different functions. These structures are used to sort organisms into groups. **Life Cycles of Organisms** **Students will understand that** • organisms resemble their parents. • organisms have life cycles that are different for different organisms. • characteristics of organisms are inherited or learned. **Organisms and Their Environments** **Students will understand that** • organisms' patterns of behavior are related to the nature of organisms' environments. There are many different environments (e.g., deserts, rain forests) on Earth that support different types of organisms. • all animals depend on plants for food. • organisms change the environment. These changes may be detrimental or beneficial.
Applications/ Connections **Patterns,Systems, Scale and Models, Constancy,and Change Over Time (2.2-2.6)**	**Students will** • use science to design simple technological solutions (e.g., paper clips, stapler) to problems. • describe the role of science and technology in dealing with local issues (e.g., landfill location). • examine the role science plays in everyday life.

Grade 5 Science

Academic Expectations	Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**	**Students will** • identify questions that can be answered through scientific investigations combined with scientific information. • use appropriate equipment (e.g., watches), tools (e.g., rain gauges), techniques (e.g., classifying), technology (e.g., calculators), and mathematics in scientific investigations. • use evidence (e.g., classifications), logic, and scientific knowledge to develop scientificexplanations. • design and conduct different kinds of scientific investigations to answer different kinds of questions. • communicate (e.g., draw, speak) designs, procedures, and results of scientific investigations. • review and analyze scientific investigations and explanations of other students.
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Physical Science** **Transfer of Energy** **Students will** • demonstrate that energy is a property of substances. • observe forms of energy transfer (e.g., vibrations in materials). • observe the ways heat can move. • recognize that the Sun's energy arrives as light with a range of wavelengths and explore how light interacts with matter. • observe how electrical circuits transfer electrical energy. **Earth/Space Science** **Structure of the Earth System** **Students will** • model the water cycle and how water dissolves minerals and gases and carries them to the oceans. • explore the characteristics of the atmosphere and how the water cycle affects the atmosphere, clouds, weather, and climate. • investigate living organisms' effects (e.g., changes in the composition of the atmosphere and the environment) on the Earth system. **Life Science** **Structure and Function in Living Systems** **Students will** • recognize the relationship between structure and function at all levels of organization (e.g., organ systems, whole organisms, ecosystems). • model cells and recognize that cells carry on functions needed to sustain life.
Applications/ Connections **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Students will** • examine the role of science in explaining and predicting natural events (e.g., floods, earthquakes, volcanoes). • demonstrate the role science plays in everyday life and explore different careers in science. • recognize how science is used to understand changes in populations, issues related to resources, and changes in environments.

Intermediate Social Studies

Intermediate Social Studies

Intermediate level social studies utilizes the five strands of social studies (historical perspective, geography, economics, government and civics, and culture and society) in an integrated program which focuses on a different grade-level context each year. For example, grade four focuses on Kentucky studies and regions of the United States through integration of all five strands. Grade five includes an integrated focus on United States history. Regardless of the grade-level context, students incorporate each of the five categories of social studies to explore the content.

The required content is devised so that districts/schools can arrange the content in a way that best meets their curricular needs. For example, the content can be provided in a chronological manner (e.g., United States history--colonization to modern times), in a thematic way (e.g., Kentucky studies through a geographic perspective), or another configuration the district/school may choose.

In addition to specifying the essential social studies content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

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Grade 4 Social Studies

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • develop a chronological understanding of Kentucky's early development as a territory and state. • explore different perspectives and interpretations of Kentucky history by using primary and secondary sources, artifacts, and time lines. • examine cause-and-effect relationships for events in Kentucky history and understand that some events had multiple causes. • understand different groups throughout Kentucky's history and their reasons for exploring and/or settling in Kentucky. • recognize how lifestyles and conditions have changed over time in Kentucky. • understand that specific symbols, slogans, buildings, and monuments represent ideas and events in Kentucky's history.
Geography (2.19)	**Students will** • understand that all places on Earth have an absolute and relative location. • recognize the five themes of geography (location, place, regions, movement, and relationships within places) and use them to analyze geographic issues and problems in Kentucky and regions of the United States. • use various representations of the Earth (e.g., maps, globes, mental maps) to find and explain human and physical geographic features in Kentucky and regions of the United States. • understand how humans have interacted with the physical environment to meet their needs in Kentucky and regions in the United States. • recognize how the physical environment, especially in the past, limited and promoted human settlement and activities in Kentucky. • use a variety of tools to obtain and present geographic information about the United States and its close neighbors (i.e., Canada, Mexico). • develop mental maps of the United States and its regions. • recognize unique places in regions of the United States.
Economics (2.18)	**Students will** • understand the basic economic problem of scarcity (imbalance between unlimited wants and limited resources) and recognize how people have addressed the problem through decision making. • understand that producers create goods and services and consumers make economic decisions and choices. • understand economic concepts (e.g., markets, goods and services, supply and demand, scarcity, opportunity cost, money as a means of exchange, profits) and use them appropriately in context to explain conditions or events in Kentucky history and regions of the United States. • recognize that economic systems are created to deal with the problem of scarcity.
Government and Civics (2.14 & 2.15)	**Students will** • understand the basic purposes of government in Kentucky including the establishment and maintenance of order, the protection of rights of individuals, and the promotion of the common good. • recognize the three levels of government. • identify the branches of government at each level and recognize the offices associated with the branches. • understand that individuals have rights and responsibilities that change when people assume different roles in different groups. • recognize that, in a democratic society, individuals need to participate in government and civic affairs.

Grade 4 Social Studies (cont.)

Academic Expectations	Content/Process
Culture and Society (2.16 & 2.17)	**Students will** • understand similarities and differences in the ways groups and cultures within Kentucky and regions of the United States address similar needs and concerns. • recognize the elements of culture using different groups from Kentucky's past and regions of the United States as examples. • understand how social institutions in Kentucky's past and regions of the United States respond to human needs, structure society, and influence behavior. • recognize how tensions and conflict can develop between and among individuals, groups, and institutions. • analyze strategies and ways to achieve conflict resolution.

Grade 5 Social Studies

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • explore the interpretive nature (how perceptions of people and passing of time influence accounts of historical events) of the history of the United States using a variety of tools (e.g., primary and secondary sources, data, artifacts). • develop a chronological understanding of the history of the United States and recognize cause-and-effect relationships and multiple causation. • recognize broad historical periods and eras of the history of the United States (i.e., Land and People before Columbus, Age of Exploration, Colonization, War for Independence, Young Republic, Westward Expansion, Industrialism, Twentieth Century). • trace change over time in the history of the United States and identify reasons for change. • examine the historical contributions of individuals and groups. • recognize the significance of important symbols, monuments, patriotic songs, poems, and written passages in the history of the United States. • recognize basic similarities and differences in the United States, Canada, and Mexico.
Geography (2.19)	**Students will** • use a variety of tools to obtain and present geographic information (e.g., landforms, natural resources, natural disasters) about the United States and its close neighbors (i.e., Canada, Mexico). • develop mental maps of the United States. • recognize unique places in the United States. • examine how the history of the United States was influenced by its physical environment. • understand human settlement patterns in the United States and how they were related to the physical environment. • understand how the people of the United States have used technology to modify the environment to meet their needs.
Economics (2.18)	**Students will** • recognize the impact of economic factors (e.g., security, growth, desire for profits) on decisions made by individuals, businesses, and governments in the United States. • examine basic components (e.g., taxes, goods and services provided by government) of the economic system of the United States . • trace changes over time in the economic system of the United States, including changes in the goods and services produced by United States workers and the impact of specialization.
Government and Civics (2.14 & 2.15)	**Students will** • recognize the basic purpose of democratic governments including the establishment of order, security, and the attainment of common goals. • understand that the Constitution of the United States establishes a government in which powers are shared among different levels and branches. • understand that, in a democratic society, citizens have rights and responsibilities. • explore the rights and responsibilities of citizens in real-life situations.

Grade 5 Social Studies (cont.)

Academic Expectations	Content/Process
Culture and Society (2.16 & 2.17)	**Students will** • understand how culture in the United States has been influenced by languages, literature, arts, beliefs, and behaviors of diverse groups. • recognize social institutions and their impact in the history of the United States. • examine social interactions among diverse groups in the history of the United States.

Middle Level Education

Middle Level Arts and Humanities

Middle Level Arts and Humanities

The content for arts and humanities is aligned with Kentucky's academic expectations. This content provides students with a grounding in the arts and enables them to appreciate their cultural and historical heritage. The disciplines included are dance, music, theatre, and visual arts.

In dance the students learn about dance elements, movements, and forms; and they recognize and understand that dance provides a unique and valuable insight into the culture or period from which it has come. As students learn the elements of music, they understand how the elements combine to express ideas, thoughts, and feelings and that culture, purpose, and history influence the way these ideas are expressed. Theatre enables students to learn the elements of the discipline and to reach beyond their individual world to other cultures, styles, and periods. Through their own works of art and the works of others, students learn the elements of art and principles of design and discover how artists use a variety of media and processes to create desired visual effects.

Through the arts and humanities, students learn that the arts areas have unique qualities that are distinctly different from any other curricular area. However, they also share many properties and connect with almost all other subjects in the curriculum. Opportunities for collaboration between the arts specialists and generalists should be provided to plan instruction that allows students to acquire the necessary knowledge and skills for participating in, responding to, and appreciating the arts.

In addition to specifying arts and humanities content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a more comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The content charts included in this document for the middle levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

Grade 6 Arts & Humanities

All students must be able to create, perform, and respond in order to develop a full appreciation for the arts.

Academic Expectations	Content/Process
Visual Arts (1.13, 2.22-2.26)	**Elements of Art and Principles of Design** **Students will** • describe the elements of art (line, shape, color, form, texture, space, value) and principles of design (balance, emphasis, pattern, repetition, contrast, movement, rhythm, proportion, unity). • describe how elements of art and principles of design help artists organize works of art. • produce visual products which illustrate elements of art and principles of design. • apply elements of art and principles of design in producing two- and three-dimensional art work involving a variety of subject matter. • continue to develop a positive self-concept about one's own work and recognize the value of others' (peers and artists) works. • use and care for an expanding number of art tools and materials in a safe and proper manner. **Processes and Media** **Students will** • describe how different media (e.g., paint, fibers, ink, clay) and processes (e.g., ceramics, painting, sculpture) can create a variety of visual effects. • use a variety of media and art processes to produce two- and three-dimensional works of art. • use art media, tools, techniques, and processes skillfully. **Historical and Cultural Context** **Students will** • recognize how elements of art and principles of design were and are used by artists in cultures around the world. • describe the characteristics of artworks representing various cultures, purposes, styles, and time periods. • assess contributions of various cultures to visual arts. • express openness and sensitivity to differences and commonalities among diverse cultures, purposes, styles, and time periods.

Grade 6 Arts & Humanities (cont.)

Academic Expectations	Content/Process
Music (1.14, 2.22-2.26)	**Elements of Music** **Students will** • demonstrate an understanding of the elements of music (rhythm, melody, form, timbre, harmony, tempo, dynamics) through singing, instrument playing, moving, listening, reading, writing, and creating. • describe the use of elements in musical examples. • read and perform, vocally and instrumentally, increasingly complex melodic and rhythmic patterns in treble and bass clefs. • demonstrate ideas and emotions through performance and/or composition using performance techniques, practices, and music concepts. • create and notate a simple composition incorporating the elements of music. • evaluate own and others' compositions and performances, using musical terms and elements to describe technical and expressive qualities. **Historical and Cultural Context** **Students will** • develop an understanding of diverse cultures, periods, and styles in music. • describe how factors such as time, place, and belief systems are reflected in music. • describe music compositions and/or performances from diverse cultures, periods, and styles.
Dance (1.15, 2.22-2.26)	**Elements of Dance** **Students will** • use appropriate terminology to describe the movements, dance elements, and steps in a performance. • create a group dance with two to three people using the elements of dance (space, time, force). • describe how the three elements of dance may be used to express feelings and emotions. • express a wide variety of emotions and ideas through dance improvisation. • describe how space, time, and force contribute to the meaning of dance. **Dance Movements and Forms** **Students will** • demonstrate basic dance concepts and perform basic movements. • create and perform a short composition featuring two movement principles (e.g., contrast, transition). • explain how dance movement differs from other movement. • identify and describe the role of compositional forms in dance. • create a complex movement sequence with a beginning, middle, and end. • describe skills of body alignment, balance, isolation of body parts, elevation, and landing. **Historical and Cultural Context** **Students will** • identify and describe roles and purposes of dance from different cultures, styles, and time periods. • describe how dance reflects culture, purpose, style, and time periods. • identify and describe movements and styles characteristic of various cultures and time periods.

Grade 6 Arts & Humanities (cont.)

All students must be able to create, perform, and respond in order to develop a full appreciation for the arts.

Academic Expectations	Content/Process
Theatre (2.22-2.26)	**Elements of Drama** **Students will** • recognize plot development (e.g., rising action, turning point, falling action) and other dramatic elements (e.g., theme, language, empathy, motivation). • select scenery, props, lighting, sound, costumes, and make-up appropriate for scripted scenes. • identify types of staging and stage directions. • identify types of training and skills necessary for jobs associated with theatre. • describe central themes of dramatic works. • discuss theatre experiences in terms of meaning for self and society. • write and perform dialogue. • plan, produce, and present existing works of drama using appropriate elements and concepts. **Historical and Cultural Context** **Students will** • communicate information about culture, time, and style in scripts, scenarios, and/or dramatizations. • engage in dramatic activities depicting different historical times, cultures, and styles. • describe how culture, purpose, style, and time periods influence dramatic works.

Grade 7 Arts & Humanities

All students must be able to create, perform, and respond in order to develop a full appreciation for the arts.

Academic Expectations	Content/Process
Visual Arts (1.13, 2.22-2.26)	**Elements of Art and Principles of Design** **Students will** • explain how elements of art (line, shape, color, form, texture, space, value) and principles of design (balance, emphasis, pattern, repetition, contrast, movement, rhythm, proportion, unity) are used to create works of art. • make art for specific purposes using elements of art and principles of design. • compare and contrast visual products which illustrate elements of art and principles of design. • refine use of elements of art and principles of design when providing two- and three-dimensional artwork. • continue to develop a positive self-concept about one's own work and recognize the value of others' (peers and artists) works. • use and care for an expanding number of art tools and materials in a safe and proper manner. **Processes and Media** **Students will** • compare and contrast visual effects created by using different media and/or processes. • use a variety of art media, processes, and subject matter to communicate ideas, feelings and experiences. • use art media, techniques, and processes skillfully. **Historical and Cultural Context** **Students will** • describe the significance of artists' roles in society. • compare and contrast artworks of various cultures, purposes, styles, and time periods. • explain contributions of various cultures to visual arts. • communicate the influences of time, place, and personality on art forms and practices.

Grade 7 Arts & Humanities (cont.)

Academic Expectations	Content/Process
Music (1.14, 2.22-2.26)	**Elements of Music** **Students will** • demonstrate an understanding of elements of music (rhythm, melody, form, timbre, harmony, tempo, dynamics) through singing, instrument playing, moving, listening, reading, writing, and creating. • compare and contrast the elements in musical examples. • read and perform vocally and instrumentally, increasingly complex melodic and rhythmic patterns in both treble and bass clefs. • demonstrate ideas and emotions through performance and/or composition using performance techniques, practices, and music concepts. • create and notate a composition incorporating the elements of music. • compare and contrast own and others' compositions and performances, using musical terms and elements to describe technical and expressive qualities. **Historical and Cultural Context** **Students will** • develop an increased understanding of the diversity of cultures, periods, and styles. • compare and contrast how factors such as time, place, and belief systems are reflected in music. • compare and contrast music compositions and/or performances from diverse cultures, periods, and styles.

All students must be able to create, perform, and respond in order to develop a full appreciation for the arts.	
Academic Expectations	**Content/Process**
Dance (1.15, 2.22-2.26)	**Elements of Dance** **Students will** • discuss elements of dance performances seen in a variety of media. • demonstrate how dance improvisations express a variety of emotions and ideas. • recognize how elements of dance (space, time, force) are used to create an overall aesthetic effect. • use space, time, and force to create a dance with tempo variations and accented and unaccented time. • explain how dance elements can be combined to create expressive dances. **Dance Movements and Forms** **Students will** • demonstrate basic concepts and perform basic movements in a variety of compositional forms. • compare and contrast a variety of compositional forms. • compare and contrast skills of body alignment, balance, isolation of body parts, elevation, and landing. • create and perform a group dance using one of the following compositional forms: AB (two-part), ABA (three-part), call and response, narrative, and rondo. • compare and contrast how dance movements differ from other movements. **Historical and Cultural Context** **Students will** • compare and contrast roles and purposes of dances from different cultures, styles, and time periods. • explain how dance reflects culture, purpose, style, and time periods. • compare and contrast movements and styles characteristic of various cultures and time periods. • recognize contributions of dance to society as both an activity and an art form.

Grade 7 Arts & Humanities (cont.)

Academic Expectations	Content/Process
Theatre (2.22-2.26)	**Elements of Drama** **Students will** • explain how elements of drama are used to create dramatic works. • explain the functions and interrelated nature of scenery, props, lighting, sound, costumes, and make-up in creating an environment appropriate for drama. • discuss types of staging and stage directions appropriate for dramatic works. • relate theatrical themes to personal experiences. • communicate feelings, ideas, and dramatic concepts through products and/or performances. • use appropriate elements and concepts to plan, produce, present, and/or perform original and existing individual and group works of drama. **Historical and Cultural Context** **Students will** • explain how dramatic works are influenced by culture, purpose, style, and time periods. • discover commonalities of character, situation and motive in theatre of various cultures and historical periods. • discuss ways in which theatrical artists in different cultures, periods, and styles present dramatizations. • demonstrate awareness that diverse cultures, periods, and styles possess different aesthetic values which affect dramatic forms.

Grade 8 Arts & Humanities

All students must be able to create, perform, and respond in order to develop a full appreciation for the arts.

Academic Expectations	Content/Process
Visual Arts (1.13, 2.22-2.26)	**Elements of Art and Principles of Design** **Students will** • analyze, interpret, and evaluate how elements of art (line, shape, color, form, texture, space, value) and principles of design (balance, emphasis, pattern, repetition, contrast, movement, rhythm, proportion, unity) are used to create works of art. • refine use of elements of art and principles of design when producing two- and three-dimensional artwork. • analyze and/or interpret how various combinations of art elements and principles of design help artists express ideas, thoughts, and feelings. • continue to develop a positive self-concept about one's own work and recognize value of others' (peers and artists) works. • continue to use and care for an expanding number of art tools and materials in a safe and proper manner. **Processes and Media** **Students will** • analyze and interpret media (e.g., paint, fiber, ink, clay) and/or processes (e.g., ceramics, painting, sculpture) various artists use to create works of art. • select a variety of art media, processes, and subject matter to communicate ideas, feelings, and experiences. • use art media, tools, techniques, and processes skillfully. **Historical and Cultural Context** **Students will** • analyze and interpret how culture, purpose, style, and history influence the way artists express ideas, thoughts, and feelings. • analyze characteristics and purposes of art that represents various cultures, historical periods, and artists. • analyze contributions of various cultures and periods to visual arts. • analyze influences of time, place, and personality on art forms and practices.

Grade 8 Arts & Humanities (cont.)

Academic Expectations	Content/Process
Music (1.14, 2.22-2.26)	**Elements of Music** **Students will** • demonstrate an understanding of elements of music (rhythm, melody, form, timbre, harmony, tempo, dynamics) through singing, instrument playing, moving, listening, reading, writing, and creating. • analyze, interpret, and evaluate musical elements. • read and perform, vocally and instrumentally, increasingly complex melodic and rhythmic patterns in both treble and bass clefs. • perform and/or compose music that demonstrates ideas and emotions through performance techniques, practices, and music concepts. • create and notate a complex composition incorporating the elements of music. • analyze, interpret, and evaluate own and others' compositions and performances, using musical terms and elements to describe technical and expressive qualities. **Historical and Cultural Context** **Students will** • develop an increased understanding of the diversity of cultures, periods, and styles. • analyze, interpret, and evaluate how factors such as time, place, and ideas are reflected in music. • analyze, interpret, and evaluate music compositions and/or performances from diverse cultures, periods, and styles.

Grade 8 Arts & Humanities (cont.)

All students must be able to create, perform, and respond in order to develop a full appreciation for the arts.

Academic Expectations	Content/Process
Dance (1.15, 2.22-2.26)	**Elements of Dance** **Students will** • recognize how movement elements are used to create overall aesthetic effects in dance. • analyze, interpret, and evaluate elements of dance performances seen in various media. • use appropriate terminology to analyze, interpret, and evaluate how various combinations of dance elements help express ideas, thoughts, and feelings. **Dance Movements and Forms** **Students will** • analyze, interpret, and evaluate the role of compositional forms in dance. • use principles of contrast and transition to create and perform group dances in a variety of compositional forms. • analyze, interpret, and evaluate skills of body alignment, balance, isolation of body parts, elevation, and landing. • use appropriate concepts and terminology to analyze own and others' work. • analyze how dance movements differ from other movements. **Historical and Cultural Context** **Students will** • analyze and interpret roles and purposes of dance from different cultures, styles, and time periods. • analyze how dance reflects culture, purpose, style, and time periods. • analyze, interpret, and evaluate movements and styles characteristic of various cultures and time periods. • analyze and interpret how culture, purpose, style, and history influence how dance artists express ideas, thoughts, and feelings. • recognize the contribution of dance to society as both an activity and an art form. • communicate ideas, emotions, and dance concepts through products or performances which use the contributions of diverse cultures.

Grade 8 Arts & Humanities (cont.)

Academic Expectations	Content/Process
Theatre (2.22-2.26)	**Elements of Drama** **Students will** • compare and contrast characters, environments, and actions in theatrical presentations from a variety of media. • develop characterizations based on observation of people. • identify the types of training and skills necessary for jobs associated with theatre. • compare and contrast themes of dramatic works. • suggest staging for a short script or study that considers character movements and interactions and the audience's needs. • improvise, refine, and record short dialogues and monologues to tell stories. • use appropriate terminology to review own and others' works and constructively suggest ways to improve collaborative artistic processes (e.g., planning, responding, evaluating). **Historical and Cultural Context** **Students will** • analyze and interpret how culture, purpose, style, and time periods influence dramatic works. • analyze and interpret commonality of character, situation, and motive in various cultures and historical periods. • discuss why certain subjects and ideas are re-examined in different cultures and times. • assess contributions of various cultures and periods to the expression of various dramatic forms. • use contributions of diverse cultures, periods, and/or styles to communicate ideas and dramatic concepts through products or performances.

Middle Level English/Language Arts

Middle Level English/Language Arts

The middle level English/Language Arts content is aligned with Kentucky's academic expectations. Blended together are the strands of reading, writing, speaking/listening/observing, inquiry, and using technology as a communication tool. Students in middle grades build on their communication skills from elementary school, as well as further develop those skills in preparation for their high school experiences.

Middle level English/Language Arts is designed to present a wide range of reading experiences with print and nonprint text for literary, informational, persuasive, and practical purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies, as well as the writing process and criteria for effective writing, to write in a variety of forms and for multiple audiences and purposes. The arts and humanities academic expectations about creating (2.22) and appreciating works of art (2.24 and 2.25) are appropriately embedded within the context of reading and writing; however, they are not intended to be the primary focus of English/Language Arts instruction. Speaking, listening, and observing skills are used to communicate information for a variety of authentic purposes, situations, and audiences. The integration of inquiry skills and technology with the other strands allows students to continue to discover and communicate ideas and information. Furthermore, the skills and processes from Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge) are incorporated throughout the content of English/Language Arts.

Each of the five strands begins with a statement in boldface type which describes the general content of that strand. Skills/processes in the bulleted lists provide further focus for minimum content to be covered at each grade level. Statements in boldface type and the bulleted lists must be combined for a complete description of the grade-level content.

Content charts for the middle level are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Grade 6 English/Language Arts

Academic Expectations	Content/Process
Reading (1.2) **Art and Humanities (2.24, 2.25)**	**Students apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • identify meaning of a variety of reading materials, making connections to students' lives, to real world issues, and/or to current events. • understand characteristics and elements of different literary genres (e.g., novels, essays, short stories, poetry, drama). • respond to transactive reading materials (informational, practical/workplace, and persuasive), supporting ideas through summarizing and through identifying main ideas, details, and examples. • interpret text features (e.g., layout, boldface print, bullets, diagrams) of transactive reading materials to understand passages and complete authentic tasks. • identify and apply logical sequence in reading materials to complete tasks or procedures. • employ reading strategies (e.g., skimming, scanning) to locate and apply information in varied print and nonprint (e.g., computers, electronic media, interviews) sources for inquiry projects and other authentic tasks. • select and read materials for enjoyment. • use vocabulary and comprehension strategies, as well as technology, to understand text.
Academic Expectations	**Content/Process**
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings for a variety of authentic purposes and audiences and in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • respond to reading, listening, observing, and inquiry through applying writing-to-learn strategies in situations such as graphic organizers, notetaking, journals, and logs and writing-to-demonstrate-learning strategies in situations such as graphic organizers, open-response questions, and summaries. • use information from technology and other resources to produce writing that develops and supports independent ideas and contains source citations. • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) based on personal experience, reading, listening, observing, and/or inquiry (additional supporting Academic Expectation 6.3). • write literary pieces which draw on an understanding of ideas and techniques from a variety of literary genres (additional supporting Academic Expectation 5.2). • analyze their own and others' writings for characteristics of effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

Grade 6 English/Language Arts (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students construct meaning from observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • interpret meaning from verbal/nonverbal cues by applying appropriate listening and observing strategies. • convey meaning through appropriate delivery techniques (e.g., correct and appropriate language, nonverbal cues, visual aids, volume, rate, and tone). • apply organizational skills to prepare and deliver oral messages with and without technology (additional supporting Academic Expectation 5.3). • apply listening, speaking, and observing skills to conduct authentic inquiry tasks and to create products (additional supporting Academic Expectation 5.1).
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information to learn and to communicate ideas for specific purposes. Students will** • develop questions to obtain ideas and information for authentic tasks (additional supporting Academic Expectation 6.3). • identify different types of resources to accomplish a variety of tasks. • explore and use research tools to gather information and ideas for authentic tasks.
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use technology to access ideas and information for authentic tasks. • explore technology as a means of communication.

Grade 7 English/Language Arts

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • identify the meaning of a variety of reading materials, making connections to students' lives, to the real world, and/or to current events. • respond to and analyze meaning, literary techniques (e.g., figurative language, foreshadowing, characterization), and elements (e.g., characters, setting, conflict/resolution, theme, point of view) of different literary genres (e.g., novels, essays, short stories, poetry, drama). • respond to and analyze transactive reading materials (informational, practical/workplace, and persuasive) through raising and addressing questions, making predictions, drawing conclusions, solving problems, and summarizing information (additional supporting Academic Expectation 5.1). • interpret and apply information in a variety of transactive reading materials to complete authentic tasks. • identify authors' positions, main ideas, and techniques of support in persuasive materials. • select and read materials for enjoyment. • employ reading strategies (e.g., skimming, scanning) to locate and apply information in varied print and nonprint (e.g., computers, media, interviews) resources for inquiry projects and other authentic tasks. • use vocabulary and comprehension strategies, as well as technology, to understand text.
Academic Expectations	**Content/Process**
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings for a variety of authentic purposes and audiences and in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • respond to reading, listening, observing, and inquiry through applying writing-to-learn strategies in situations such as graphic organizers, notetaking, journals, and logs and writing-to-demonstrate-learning strategies in situations such as graphic organizers, open-response questions, and summaries. • use information from technology and other resources to develop independent ideas and support those ideas in writings for authentic purposes and audiences. • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning), based on inquiry and/or personal experience that show independent thinking and incorporate ideas and information from reading, listening, observing, and inquiry. • write literary pieces reflecting elements of genres read and techniques/styles of accomplished writers (additional supporting Academic Expectation 5.2). • write personal pieces to communicate ideas. • write pieces that reflect on themselves as writers and on their own samples of writing. • critique their own and others' works based on criteria for effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

Grade 7 English/Language Arts (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students construct meaning from observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • adjust listening and observing strategies for specific situations and purposes (e.g., to follow directions, to acquire information, for entertainment, to complete a task). • apply organizational skills and delivery techniques to produce oral messages and products with and without technology. • apply listening, speaking, and observing skills to conduct authentic inquiry tasks and to create products (additional supporting Academic Expectation 5.1).
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information to learn and to communicate ideas for specific purposes. Students will** • develop effective questions to obtain ideas and information and access resources to address those questions. • identify the most appropriate resources to accomplish different tasks (additional supporting Academic Expectation 5.4). • follow a logical plan of inquiry to complete tasks. • use research tools to gather and organize ideas and information from library, personal, and community resources.
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use appropriate technology to access ideas and information for authentic tasks. • use technology to enhance communication for authentic audiences and purposes.

Grade 8 English/Language Arts

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • read and understand a variety of materials, making connections to students' lives, to real world issues, and/or to current events. • apply an understanding of literary elements (e.g., characters, setting, conflict/resolution, theme, point of view), techniques (e.g., figurative language, foreshadowing, characterization), and styles to interpret different genres (e.g., novels, essays, short stories, poetry, drama). • analyze transactive reading material (informational, practical/workplace, and persuasive) to create responses through addressing issues, confirming predictions, paraphrasing information to support ideas, and formulating/supporting opinions. • evaluate the effectiveness of techniques and organizational aids (e.g., bullets, lists, layout, embedded visuals) in transactive reading materials to enhance understanding and to complete tasks. • identify and analyze authors' positions, main ideas, and techniques of support in persuasive materials. • select and read materials for enjoyment. • employ reading strategies to locate and apply information in varied print and nonprint (e.g., computers, electronic media, interviews) resources for inquiry projects and other authentic tasks. • interpret how meaning is influenced by authors' use of language including dialect, word choice, and sentence structure.
Academic Expectations	**Content/Process**
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings for a variety of authentic purposes and audiences and in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • respond to materials read and concerns relevant to students' lives and the lives of others in society through applying writing-to-learn strategies and writing-to-demonstrate-learning strategies (additional supporting Academic Expectations 1.10, 5.1, 6.3). • access technology and other resources to learn and to write, developing independent ideas, synthesizing information to support ideas, and using appropriate source citations. • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) that demonstrate independent thinking about literature, issues, and events relevant to students' lives. • write literary pieces reflecting elements of genres read and techniques, styles, themes, and topics of accomplished writers. • write personal pieces to communicate ideas. • write reflective pieces about students' own writing and reading which analyze, evaluate, plan, and solve problems. • critique their own and others' works based on criteria for effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

Grade 8 English/Language Arts (cont.)

Academic Expectations	Content Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students construct meaning from observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • analyze effectiveness and purposes of oral messages and audience responses. • collaborate to gather and interpret information from observing, speaking, and listening and to prepare and deliver messages and products. • apply listening, speaking and observing skills to conduct authentic independent inquiry tasks in order to create products (additional supporting Academic Expectation 5.1).
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information to learn and to communicate ideas for specific purposes. Students will** • follow a logical, organized plan of inquiry to learn and to complete tasks (additional supporting Academic Expectation 5.5). • evaluate the appropriateness of resources and of ideas and information gained through inquiry. • create products by accessing a variety of appropriate personal, community, and/or global sources, both print and nonprint (additional supporting Academic Expectation 6.3).
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use the most appropriate technology to access ideas and information for authentic tasks. • analyze the effectiveness of various technologies for specific purposes, audiences, and situations. • communicate with others through the effective use of technology (e.g., videos, computers, TV, radio, and public address announcements).

Middle Level Health Education

Middle Level Health Education

Individuals are required to make daily decisions regarding health issues that affect their immediate and long-term health. Maintaining a healthy way of living requires a balance of physical, mental, emotional, and social well-being. Health education provides students with knowledge and skills necessary to confront health-related issues and make a smooth transition from puberty to adolescence.

The middle level health education curriculum emphasizes development of decision-making skills related to the essential areas of self-esteem, peer pressure, physical wellness, nutrition, safety and first aid, disease prevention, exercise, fitness, human growth and development, stress management, conflict resolution, substance abuse, group membership, goal setting, mental and emotional wellness, community resources and services, and health-related consumer choices.

The vertical column on each chart contains Kentucky's academic expectations to be taught. In addition to specifying health education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The content charts included in this document for the middle levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

Grade 6 Health Education

Academic Expectations	Content/Process
Individual Well-Being (2.29)	**Students will** • recognize that rights and responsibilities are interrelated. • demonstrate conflict resolution strategies. • describe physical, emotional, and social changes that occur during puberty. • identify abstinence as the only sure means of preventing pregnancy and STDs.
Consumer Decision (2.30)	**Students will** • compare wants and needs in relation to consumer decisions. • describe positive and negative techniques (e.g., use of gimmicks, misleading or false information) used by advertisers . • analyze environmental impacts when making consumer decisions.
Personal Wellness (2.31)	**Students will** • describe how good nutrition helps develop healthy individuals. • use food guide pyramid to evaluate diets. • know and use school safety rules (e.g., playground, bus, classroom). • comply with school safety procedures (e.g., tornado, fire, earthquake drills). • follow traffic safety rules (e.g., crossing street, riding bikes, seat belts). • implement personal safety strategies. • demonstrate procedures for emergency assistance. • recognize risk factors for communicable diseases (e.g., hepatitis, colds, influenza, mononucleosis, TB, AIDS/HIV/STDs) and the impact of those diseases on personal health. • assess personal health practices (e.g., diet; rest; exercise; personal cleanliness; care of eyes, ears, teeth, skin)
Mental Wellness (2.32)	**Students will** • identify causes and effects of eating disorders (e.g., anorexia, bulimia, overeating). • analyze consequences and risks of choices (e.g., smoking, drinking, other drug use). • develop strategies to cope with peer pressure and potential rejection. • develop short-term personal goals to assist in achieving long-term goals.
Community Services (2.33)	**Students will** • evaluate health services and resources available in communities (e.g., public health department, voluntary health organizations, hospitals). • identify health-related careers. • identify services provided by environmental protection agencies.

Grade 7 Health Education

Academic Expectations	Content/Process
Individual Well-Being (2.29)	**Students will** • examine how respect, rules, communication, and cooperation enable groups to function effectively. • demonstrate conflict resolution strategies. • describe physical, emotional, and social changes that occur during puberty. • describe the structure and function of the reproductive system. • determine procedures for dealing with unsafe and threatening situations. • recognize abstinence as the only sure means of preventing pregnancy and STDs.
Consumer Decision (2.30)	**Students will** • examine influences (e.g., peer pressure, advertising, media, desire for status) on consumer choices of adolescents. • compare products by price, quality, and availability to make informed decisions. • identify ways to become an 'intelligent health consumer.'
Personal Wellness (2.31)	**Students will** • determine the role nutrients play in developing healthy individuals. • investigate health and safety hazards at home, school, and play. • follow safe traffic/transportation practices. • demonstrate procedures for emergency assistance. • recognize risk factors for communicable diseases (e.g., hepatitis, colds, influenza, mononucleosis, TB, AIDS/HIV/STDs) and the impact of those diseases on personal health.
Mental Wellness (2.32)	**Students will** • describe possible consequences of risk-taking actions (e.g., smoking, drinking, other drug use). • identify causes and effects of emotional disorders and addictive habits. • describe symptoms of mental illness (e.g., depression, anxiety). • explain the importance of preventing eating disorders (e.g., anorexia, bulimia, overeating). • develop strategies for overcoming rejection, loss, and grief. • develop coping strategies to use with increasing peer pressure. • describe how short- and long-term goals are interrelated. • evaluate health behaviors and attitudes of peers.
Community Services (2.33)	**Students will** • explore sources of health information, services, and resources. • research health-related careers. • suggest solutions to community environmental problems.

Grade 8 Health Education

Academic Expectations	Content/Process
Individual Well-Being (2.29)	**Students will** • practice group processing strategies (e.g., collaboration). • practice conflict resolution strategies. • describe the structure and function of body systems (e.g., reproductive, digestive, circulatory). • identify abstinence as the only sure means of preventing pregnancy and STDs.
Consumer Decisions (2.30)	**Students will** • compare products by price, quality, and availability to make informed decisions. • consider environmental issues when making consumer decisions. • describe budgeting procedures for achieving short- and long-term goals.
Personal Wellness (2.31)	**Students will** • use strategies to maintain personal safety. • practice basic first aid for a variety of life-threatening emergencies (e.g., choking, shock, poisoning). • describe the role of nutrients in proper growth and development. • determine the impact of exercise and nutrition on appearance, performance, and disposition. • describe the effect of diet, exercise, and rest on body systems. • recognize risk factors for communicable diseases (e.g., hepatitis, colds, influenza, mononucleosis, TB, AIDS/HIV/STDs) and the impact of those diseases on personal health. • describe risk factors for non-communicable diseases (e.g., cancer, diabetes, high blood pressure). • practice disease prevention strategies. • identify health habits and behaviors of adolescents that affect physical and emotional wellness.

Grade 8 Health Education (cont.)

Academic Expectations	Content/Process
Mental Wellness (2.32)	**Students will** • investigate nature of mental illnesses. • assess consequences and risks, of choices and actions (e.g., smoking, drinking, other drug use) and suggest alternatives. • explore resources and treatments available to fight drug addiction. • explain the effects of eating disorders on individuals and families. • practice strategies for dealing with peer pressure, managing stressful situations, and preventing violence. • implement strategies (e.g., time management, decision making) to enhance personal success and achievement. • determine and work toward long-term goals.
Community Services (2.33)	**Students will** • evaluate agency and governmental standards (e.g., restaurant inspections, OSHA, water quality) and the part they play in the reduction of health risks. • describe the role of individuals and society in conserving resources. • examine health-related problems in local, state, national, and international communities. • implement strategies to help reduce community environmental problems.

Middle Level Mathematics

Middle Level Mathematics

The content is directly aligned with Kentucky's academic expectations. Each content chart is designed to present the mathematical topics that are fundamental to mathematical literacy and mathematical power for all middle school students. Each content statement is interrelated with other statements and designed to be delivered in meaningful contexts, developing mathematical problem solving, communication, connections, and reasoning.

Features of middle school mathematics programs include exploration, communication, mathematical tools, manipulatives (concrete materials), calculators, hands-on activities, and group work. The students' interrelated mathematical explorations and experiences contribute to their confidence and ability to understand and address real quantitative, scientific, and technological issues.

Middle level problem solving, mathematical communications, connections, and mathematical reasoning should be a part of the mathematics curriculum. Accuracy is an integral part of the mathematics program.

Problem solving includes multiple strategies for modeling, interpreting, and formulating problems based in real-world situations, within and outside mathematics, and aids in investigating and understanding mathematical content.

Mathematical communication includes modeling problems including oral, written, concrete, visual, graphical, and algebraic methods to define, interpret, and argue mathematical ideas. Mathematical communication includes mathematical symbolic notation (letters and marks used in mathematics to name numbers, operations, sets, relations).

Mathematical connections include relating mathematical ideas within mathematics and to other disciplines using graphic, numerical, physical, algebraic, and verbal models.

Mathematical reasoning includes deductive and inductive reasoning necessary in developing conjectures and validating arguments.

The content charts included in this document for the middle levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students, creating integrated, interdisciplinary, or multidisciplinary programs, or offer higher level coursework.

Each topic organizer is followed by the relevant academic expectations. Bulleted points denote the required content statements. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive. Schools or districts may arrange the content to meet the needs of their students. For example, they may offer the content in a grade-level arrangement or as integrated courses that focus on topics within units or alternate configurations. The mathematics content also provides connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning.

Grade 6 Mathematics

This chart lists the concepts that should be included in middle level math courses. Middle level mathematics programs address Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate Knowledge.

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
Number and Computation (2.7, 2.8, 2.11, 2.12)	**Students will** • continue to develop number sense including fractions, decimals, and percents (including percents greater than 100% and improper fractions). • extend understanding of operations (+, -, x, ÷) to include fractions and decimals. • develop meaning of ratio (describe and compare two sets of data using ratios and appropriate notations: 3:5, 3/5, 3 to 5). • develop place value of large and small numbers (include decimals). • explore exponents (e.g., squares, cubes). • determine prime numbers, composite numbers, factors, multiples, greatest common factors, and least common multiples. • extend and apply addition, subtraction, multiplication, and division of common fractions and decimals with manipulatives and symbols (e.g., mental, pencil and paper, calculators). • simplify fractions with prime factorization (numbers that divide exactly into a given number). • estimate with large and small quantities of objects. • estimate and mentally compute using fractions and decimals. • use prime numbers, composite numbers, factors, multiples, and divisibility to solve problems. • compare, order, and convert between whole numbers, fractions, and decimals, using concrete materials, drawings or pictures, and mathematical symbols (<, >, =, order on a number line). • explore how applications of properties (e.g., commutative, associative, inverse, identity) show relationships among numbers and operations.			
Geometry and Measurement (2.8, 2.9, 2.10, 2.11)	**Students will** • find perimeter of regular and irregular polygons in metric and U.S. customary units. • read and use measurement tools (e.g., rulers, scales). • find area of plane figures composed of squares and rectangles through subdividing and measuring and use square units appropriately. • estimate, compare, and convert units of measures for length, weight/mass, and volume/capacity within the U.S. customary system and within the metric system: a) length (e.g., parts of an inch, inches, feet, yards, miles, millimeter, centimeter, kilometer; b) weight/mass (e.g., pounds, tons, grams, kilograms); and c) volume/capacity (e.g., cups, pints, quarts, gallons, milliliters, liters). (The intent of this standard is for students to make ballpark comparisons and not to memorize conversion factors between U.S. and metric units.) • estimate and find angle measurement and segment measurements. • formulate the rule that the sum of angle measurements is 180 degrees in a triangle and 360 degrees in a quadrilateral. • identify properties and classify line segments, rays, planes, and points. • recognize regular polygons; special quadrilaterals including squares, rectangles, rhombuses, trapezoids, and parallelograms; and special triangles including acute, obtuse, scalene, and isosceles. • identify characteristics of lines (e.g., parallel, perpendicular). • use lines of symmetry and sketch plane figures with multiple lines of symmetry.			

Grade 6 Mathematics (cont.)

<table>
<tr><th>Academic Expectations</th><th colspan="4">Content/Process</th></tr>
<tr><td rowspan="2">Probability and Statistics (2.8, 2.9, 2.11, 2.13)</td><td>Problem Solving</td><td>Reasoning</td><td>Mathematical Communications</td><td>Connections</td></tr>
<tr><td colspan="4">Students will
• collect, organize, analyze, and interpret data in a variety of graphical methods, including line plots, line graphs, bar graphs, and stem and leaf plots.
• made predictions, draw conclusions, and verify results from statistical data and probability experiments.
• select an appropriate graph to represent given data.
• compare data from various types of graphs.
• investigate solutions to probability problems, using counting techniques, tree diagrams, charts, and tables.
• recognize the role of probability in decision making.
• apply range and measures of central tendency (mean, median, mode).</td></tr>
<tr><td>Algebraic Ideas (2.7,2.8,2.9,2.10, 2.11,2.12)</td><td colspan="4">Students will
• recognize, create, and continue patterns (give an informal description for the continuance of the pattern and/or generalize patterns through a verbal rule).
• represent, interpret, and describe function relationships through tables, graphs, and verbal rules.
• write and solve equations with one variable, using concrete and/or informal methods that model everyday situations.
• explore the concept of variable, expression, and equation.
• solve problems involving simple formulas (i.e., A = 1w, P = 21 + 2w).
• interpret relationships between tables and graphs.
• organize data into tables and plot points onto the first quadrant of a coordinate (Cartesian) system/grid.</td></tr>
</table>

Grade 7 Mathematics

This chart lists the concepts that should be included in middle level math courses. Middle level mathematics programs address Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate Knowledge.

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
Number and Computation (2.7, 2.8, 2.11, 2.12)	**Students will** • extend number sense for percents and integers. • extend understanding of operations (=, -, x, ÷) to include integers. • develop number sense for pi as one example of an irrational number. • apply meaning of ratio and proportion to problems. • use whole number exponents. • extend and apply addition, subtraction, multiplication, and division of integers both concretely and symbolically (mental, pencil and paper, calculators). • extend concepts and application of operations with fractions and decimals to include percents. • compute percentages of numbers and use percentages in proportional reasoning. • estimate and mentally compute using integers and percents. • solve proportions. • compare, order, and determine equivalent relationships among fractions, decimals, and percents. • explain and apply properties (e.g., commutative, associative, distributive, inverse, identity). • develop proportional thinking, rates, scaling, and similarity.			
Geometry and Measurement (2.8, 2.9, 2.10, 2.11)	**Students will** • find circle measurements (radius, diameter, circumference, area) and the relationships among them. • develop and use the formulas for area of triangles, parallelograms, and trapezoid; relate to the formula for area of rectangles (1 x w). • investigate fixed area with changing perimeter and fixed perimeter with changing area. • investigate area of polygons and other two-dimensional shapes. • identify and classify characteristics of two-dimensional shapes, such as regular and irregular quadrilaterals, special triangles, and regular polygons. • identify characteristics of angles (e.g., adjacent, vertical, corresponding, interior, exterior). • represent three-dimensional geometric figures with special attention to developing spatial sense (e.g., top view, side view, three-dimensional shapes drawn on isometric dot paper). • move shapes in a plane: (e.g., translate (slide), rotate (turn), reflect (flip)).			

Grade 7 Mathematics (cont.)

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
Probability and Statistics (2.8, 2.9, 2.11, 2.13)	**Students will** • collect, organize, analyze, and interpret data in a variety of graphical methods, including circle graphs, multiple line graphs, double bar graphs, and double stem and leaf plots. • make predictions, draw conclusions, and verify results from statistical data and probability experiments. • select an appropriate graph to represent given data and justify its use. • compare data from various types of graphs. • determine appropriate techniques to use when investigating solutions to probability problems (using counting techniques; tree diagrams; area models; and exhaustive, organized lists, charts, and tables). • investigate and explain the role of probability in decision making. • determine and apply the most appropriate measures of central tendency (e.g, mean, median, mode) and/or dispersion (e.g., range). • design and conduct probability experiments. • determine theoretical (mathematical) probabilities, compare to experimental results, and explain reasons why there might be differences, (e.g., express probability as a ratio, decimal, or a percent as appropriate for a given situation). • explore concepts of randomness and independent events.			
Algebraic Ideas (2.7, 2.8, 2.9, 2.10, 2.11, 2.12)	**Students will** • recognize, create, and continue patterns and generalize the pattern by giving the rule for any term. • represent, interpret, and describe functional relationships through tables, graphs, and verbal rules (input/output). • understand the concept of equations and inequalities using variables as they relate to everyday situations. • simplify numeric and algebraic expressions. • use a variety of methods and representations to create and solve single-variable equations that may be applied to everyday situations. • solve problems involving formulas. • organize data into tables and plot points onto all four quadrants of a coordinate (Cartesian) system/grid and interpret resulting patterns or trends. • interpret relationships between tables, graphs, verbal rules, and equations.			

Grade 8 Mathematics

This chart lists the concepts that should be included in middle level math courses. Middle level mathematics programs address Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate Knowledge.

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
Number and Computation (2.7, 2.8, 2.11, 2.12)	**Students will** • use percents, decimals, integers, and fractions (include percents less than 1). • use percentages and proportions in consumer applications (e.g., simple interest, percentages of increase or decrease, discounts, unit pricing, sale prices). • use irrational numbers (e.g., square roots). • relate irrational and rational numbers (e.g., magnitude, order on a number line). • determine the inverse relationship between addition and subtraction, multiplication and division, or raising to an exponent and taking the root of a number.			
Geometry and Measurement (2.8, 2.9, 2.10, 2.11)	**Students will** • discover and apply the Pythagorean theorem. • derive and use formulas for various rates (e.g., distance/time, miles per hour). • develop and apply formulas for volume and surface area of cubes, cylinders, and rectangular prisms; and investigate relationships between and among them. • develop and apply proportionality and relationships between scale models and actual figures. • investigate transformations' congruence, proportionality, and similarity (e.g., enlargements, reductions, proportional triangles) in a coordinate plane. • investigate counting techniques through shortest paths (e.g., networks).			
Probability and Statistics (2.8, 2.9, 2.11, 2.13)	**Students will** • collect, organize, analyze, and interpret data in a variety of graphical methods (e.g., circle graphs, scatter plots, box and whisker plots, histograms). • make predictions, draw conclusions, and verify results from statistical data and probability experiments. • select an appropriate graph to represent given data and justify its use. • compare data from various types of graphs. • recognize that statistics can be interpreted in many ways. • analyze situations, such as games of chance, board games, or grading scales, and make predictions using knowledge of probability. • identify and describe the number of possible arrangements of several objects, using a tree diagram or the basic counting principle, and make a sample space represented in the form of a list, picture, chart, or a tree diagram. • investigate and explain the role of probability in everyday decision making. • design and conduct probability experiments and interpret the results. • explore concepts of randomness and independent events. • determine theoretical (mathematical) probabilities, compare that to experimental results, and explain reasons why there might be differences (e.g., express probability as a ratio, decimal, percent as appropriate for a given situation). • determine and interpret clusters, quartiles, gaps, and outliers in data.			

Grade 8 Mathematics (cont.)

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
Algebraic Ideas (2.7, 2.8, 2.9, 2.10, 2.11, 2.12)	**Students will** • recognize, create, and continue patterns (generalize the pattern by giving the rule for the *n*th term and defend the generalization). • represent, interpret, and describe functional relationships through tables, graphs, and symbolic rules (input/output). • explain how change in one variable affects change in another variable (e.g., in distance equals rate times time, increasing time, increases distance). • use a variety of methods and representations to create and solve one- and two-variable linear equations that require two steps. • simplify algebraic expressions. • investigate inequalities using a variety of methods and representations. • solve problems involving substitutions and formulas. • organize data into tables, plot points onto all four quadrants of a coordinate (Cartesian) system/grid, interpret resulting patterns or trends. • interpret and explain relationships between tables, graphs, verbal rules, and equations. • graph linear functions in a four quadrant (Cartesian) system/grid and interpret the results. • determine the slope and equation of a line by analyzing the line (e.g., Y = mx + b; m is rise/run, b is y - intercept).			

Middle Level Physical Education

Middle Level Physical Education

Middle level physical education assists in the continuing physical, mental, social, and emotional development of students as they make the transition from puberty to adolescence. The physical education program provides students opportunities to learn sportsmanship, cooperation, principles of motor skills, fitness, conditioning, and the physical and social benefits of exercise.

The middle level physical education program focuses on fitness activities, techniques, strategies, and rules of games and sports. Participation in lifetime activities such as golf, tennis, bowling, archery, running, hiking, swimming, and cycling are also emphasized. Other benefits derived from participation in physical education include the abilities to assess wellness and to analyze movement skills.

The vertical column on each chart contains Kentucky's academic expectations to be taught in the course. In addition to specifying physical education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The content charts included in this document for the middle levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrate, interdisciplinary, or multidisciplinary programs.

All physical education courses taught in the state of Kentucky must be in compliance with P.L. 105-17 and Title IX and shall not include practice for or participation in interscholastic athletics.

Grade 6 Physical Education

Academic Expectations	Content/Process
Personal Wellness (2.31)	**Students will** • evaluate their own health-related fitness. • monitor intensity of exercise (e.g., resting heart rate, target heart rate, recovery time). • identify principles of training and conditioning (e.g., frequency, intensity, duration, mode) in activities (e.g., running, jogging, aerobics). • establish personal fitness goals and personal fitness programs.
Psychomotor (2.34)	**Students will** • demonstrate movement concepts (e.g., space awareness, effort, formations that occur between objects and people). • demonstrate progression for all basic locomotor (e.g., walk, run, hop) and nonlocomotor (e.g., push, pull, twist, turn, curl, stretch, balance) skills. • use strategies for modified team and individual games. • apply appropriate movement concepts in various games and sport activities. • implement techniques to achieve consistency in performance of fundamental skills (e.g., throwing, catching, kicking, striking, dribbling) for participation in games and activities.
Lifetime Activity (2.35)	**Students will** • use rules and fair play in games and sports. • apply techniques to achieve consistency for games and sports. • identify benefits of regular participation in leisure, recreational, and competitive physical activity.

Grade 7 Physical Education

Academic Expectations	Content/Process
Personal Wellness (2.31)	**Students will** • evaluate their own health-related fitness. • monitor intensity of exercise (e.g., resting heart rate, target heart rate, recovery time). • describe principles of training and conditioning (e.g., frequency, intensity, duration, mode) in activities (e.g., running, jogging, aerobics). • recognize body changes following regular participation in physical activity. • develop personal fitness goals and personal fitness programs.
Psychomotor (2.34)	**Students will** • apply movement concepts (e.g., space awareness, effort, formations that occur between objects and people) in various games and sports activities. • demonstrate increasing competence in advanced individual, dual, and team skills. • demonstrate improved strategies for a variety of games and activities. • improve techniques to achieve consistency in performance of fundamental skills (e.g., throwing, catching, striking, kicking, dribbling) for participation in games and activities.
Lifetime Activity (2.35)	**Students will** • describe benefits of regular participation in leisure, recreational, and competitive physical activity. • apply rules and fair play in games and sports. • practice to achieve consistency in games and sports.

Grade 8 Physical Education

Academic Expectations	Content/Process
Personal Wellness (2.31)	**Students will** • describe body changes following regular participation in physical activity. • relate benefits of exercise and fitness to physical development. • evaluate their own health-related fitness. • monitor intensity of exercise (e.g., resting heart rate, target heart rate, recovery time). • apply principles of fitness training and conditioning (e.g., frequency, intensity, duration, mode) in activities (e.g., running, jogging, aerobics). • enhance personal fitness goals and personal fitness programs.
Psychomotor (2.34)	**Students will** • apply movement concepts (e.g., space awareness, effort, formations that occur between objects and people) in various games and sports activities. • demonstrate principles of motor skill refinement (e.g., accuracy, techniques, physics). • use basic offensive and defensive strategies in modified versions of team and individual sports. • critique transitional movement sequences and patterns to make recommendations for improvement. • develop transitional motor skills for participation in games, activities, and rhythmic movements (e.g., baseball, soccer, basketball). • refine techniques to achieve consistency in performance of fundamental skills (e.g., throwing, catching, kicking, striking, dribbling) in games and activities. • analyze object manipulation to make recommendations for improvement.
Lifetime Activity (2.35)	**Students will** • demonstrate sportsmanship (e.g., fair play, following rules, accepting officials' decisions, controlling responses) as it applies to participants and spectators. • develop techniques and refine skills related to performance in games and sports. • analyze benefits of regular participation in leisure, recreational, and competitive physical activity.

Middle Level Science

Middle Level Science

Middle school students will frequently engage in concrete hands-on experiences with science that require a minds-on approach. These concrete experiences provide the necessary background information for middle school concepts (e.g., force, energy) as well as more abstract concepts that will develop in high school (e.g., atomic structure, DNA, formation of galaxies). The middle school students' descriptions and observations of the physical world, the Earth and sky, and living organisms will be more extensive than those of intermediate students. For example, middle school students will have an understanding of ecosystems and cellular dimensions rather than the understanding of individual organisms studied in the earlier grades. Middle school students will improve abilities in inquiry, add to their understanding of physical, earth/space, life science concepts, and be able to apply and connect science to their lives. Middle school students will increase their knowledge and abilities in high school. For example, using observational evidence to develop models of the Earth system and the solar system will set the stage for the more abstract models of the universe that will be studied in high school.

Middle level science contains the physical, earth/space, and life science concepts shown in the **conceptual understandings** chart. These concepts will be taught through scientific inquiry and applications and connections. Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link physical, earth/space, and life science concepts to scientific inquiry and applications and connections.

Scientific inquiry is identical to Academic Expectation 2.1: "Students understand scientific ways of thinking and working and use those methods to solve real-life problems." Scientific inquiry is not a standard "scientific method"; rather it includes a variety of types of investigations. Scientific inquiry requires the use of science concepts to design investigations and to develop explanations from the results of those investigations. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are reflected in scientific inquiry.

Scientific applications/connections show science concepts in a variety of contexts to demonstrate that science is relevant to individuals and society. Scientific applications/connections show how science concepts are connected to real life (e.g., the interaction between science and technology) and how science can be used to solve real life problems (e.g., problems in technology, explaining and predicting natural events). Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link science concepts to scientific applications/connections. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are also reflected in scientific applications/connections.

Content charts included in this document for the middle levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs. Examples in parentheses throughout the document (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

Grade 6 Science

Academic Expectations	Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**	**Students will** • identify and refine questions that can be answered through scientific investigations combined with scientific information. • use appropriate equipment (e.g., binoculars), tools (e.g., beakers), techniques (e.g. ordering), technology (e.g., calculators), and mathematics in scientific investigations. • use evidence (e.g., orderings, organizations), logic, and scientific knowledge to develop scientific explanations. • design and conduct different kinds of scientific investigations to answer different kinds of questions. • communicate (e.g., speak, write) designs, procedures, and results of scientific investigations. • review and analyze scientific investigations and explanations of other students.
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Physical Science** **Motions and Forces** **Students will** • describe, measure, and represent (e.g., arrows) an object's motion. • investigate balanced or unbalanced forces and the effect on an object's motion. **Earth/Space Science** **Earth in the Solar System** **Students will** • model the solar system (e.g., structure, number of planets) and its components (e.g., planets, moons, asteroids). • model motion (e.g., orbits) of astronomical objects (e.g., planets, constellations, galaxies) to explain phenomena such as days, years, and eclipses. • recognize that gravitational forces cause motion in the solar system. • identify phenomena (e.g., growth of plants, winds, water cycle, ocean currents) on the Earth caused by the Sun's energy. **Life Science** **Regulation and Behavior** **Students will** • investigate how organisms obtain and use resources, grow, reproduce, and maintain stable internal conditions. Examine the regulation of an organism's internal environment. • analyze internal or environmental stimuli and organisms' behavioral responses. Explore how organisms' behavior changes through adaptation. **Populations and Ecosystems** **Students will** • observe populations and determine the functions (e.g., decomposers, producers, consumers) they serve in an ecosystem. • investigate energy flow in ecosystems. • investigate factors (e.g., resources, light, water) that affect the number of organisms an ecosystem can support.
Applications/ Connections **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2 - 2.6)**	**Students will** • examine the interaction between science and technology. • recognize how science is used to understand changes in populations, issues related to resources, and changes in environments.

Grade 7 Science

Academic Expectations	Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**	**Students will** • identify and refine questions that can be answered through scientific investigations combined with scientific information. • use appropriate equipment (e.g., spring scales), tools (e.g., spatulas), techniques (e.g., measuring), technology (e.g., computers), and mathematics in scientific investigations. • use evidence (e.g., measurements), logic, and scientific knowledge to develop scientific explanations. • design and conduct different kinds of scientific investigations to answer different kinds of questions. • communicate (e.g., write) designs, procedures, and results of scientific investigations. • review and analyze scientific investigations and explanations of other students.
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Physical Science** **Properties and Changes of Properties in Matter** **Students will** • investigate characteristic properties (e.g., density) of substances. • examine chemical reactions between substances, recognize that the total mass remains the same, and that substances are categorized by how they react. • recognize that elements do not break down during normal laboratory reactions and how elements combine to produce compounds. **Earth/Space Science** **Structure of the Earth System** **Students will** • model Earth's layers. • demonstrate the rock cycle (e.g., weathered rocks produce soil, weathered rocks are often recrystallized into new rock) and examine characteristics of soils. **Earth's History** **Students will** • examine Earth's processes (e.g., erosion, deposition) and catastrophes (e.g., asteroid impact). • examine evidence (e.g., fossils) for changes in life and environmental conditions. **Life Science** **Reproduction and Heredity** **Students will** • contrast asexual and sexual reproduction. • investigate traits, heredity, and genes. **Diversity and Adaptations of Organisms** **Students will** • investigate unity among organisms. • investigate biological adaptation and extinction.
Applications/ Connections **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2 - 2.6)**	**Students will** • use science to evaluate the risks and benefits to society for common activities (e.g., riding on airplanes, choice of habitation). • describe the effects of science and technology (e.g., television, computers) on society.

Grade 8 Science

The eighth grade year is a transition year between lower middle grades and high school science. The applications and connections of science to real life and the use of scientific inquiry to solve problems are emphasized in the eighth grade science program. Students explore relevant issues (e.g., environment, energy, technology and society) based on physical, earth/space, and life science concepts. Teaching science in a real-life context makes it possible for <u>all</u> students to see the usefulness of science.

Development of key concepts (e.g., Earth system, motion, ecosystems) begins in the primary years and continues through high school. The depth of concept development increases as a student moves from the primary to high school. Eighth grade science exceeds the depth of concept development in prior years, yet does not reach the level expected at high school. This enhancement of middle level science concepts provides the foundation necessary for high school science.

Academic Expectations	Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**	**Students will** • identify and refine questions that can be answered through scientific investigations combined with scientific information. • use appropriate equipment (e.g., barometers), tools (e.g., meter sticks), techniques (e.g., computer skills), technology (e.g., computers), and mathematics in scientific investigations. • use evidence (e.g., computer models), logic, and scientific knowledge to develop scientific explanations. • design and conduct different kinds of scientific investigations to answer different kinds of questions. • communicate (e.g., write, graph) designs, procedures, and results of scientific investigations. • review and analyze scientific investigations and explanations of other students.
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Physical Science** **Students will** • analyze properties (e.g., boiling point, solubility) and changes of properties in matter. • measure and represent (e.g., graph) forces on objects and motions (e.g., constant speed, changing speed) of objects. • investigate transfer of energy (e.g., heat, light, electricity, mechanical motion, sound). **Earth/Space Science** **Students will** • investigate the structure of the Earth system (e.g., lithosphere, rock cycle, water cycle, weather, climate). • analyze Earth's history (e.g., Earth processes, catastrophes, evidence for changes). • investigate the Earth as a component of the solar system (e.g., Sun, planets, motion). **Life Science** **Students will** • investigate structure (e.g., cells, tissues, organs) and function (e.g., growth, muscular function, digestion) in living systems. • analyze reproduction (e.g., asexual, sexual) and heredity (e.g., genetic information, inherited traits). • analyze regulation (changing physiological activities) and behavior (a set of responses). • investigate and analyze populations and ecosystems. • analyze diversity and adaptations (e.g., changes in structure, behaviors, or physiology).

Grade 8 Science (cont.)

Academic Expectations	Content/Process
Applications/ Connections **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2 - 2.6)**	Students will • use scientific inquiry and conceptual understandings to design technological solutions (e.g., zippers, ballpoint pens) to problems. • examine the interaction between science and technology. • recognize how science is used to understand changes in populations, issues related to resources, and changes in environments. • examine the role of science in explaining and predicting natural events (e.g., floods, earthquakes, volcanoes). • use science to evaluate the risks and benefits to society for common activities (e.g., riding on airplanes, choice of habitation). • describe the effects of science and technology (e.g., television, computers) on society. • demonstrate the role science plays in everyday life and explore different careers in science. • recognize that science is a process that generates conceptual understandings and solves problems. • explore the importance of scientific discoveries in world history (e.g., new drugs, weapons, transportation).

Middle Level Social Studies

Middle Level Social Studies

Middle level social studies uses the five strands of social studies (historical perspective, geography, economics, government and civics, and culture and society) in an integrated program which focuses on a different grade-level context each year. For example, grade six includes world geography through an integrated social studies perspective composed of historical perspective, economics, government and civics, and culture and society. Grade seven focuses on an integrated study of world history from the earliest civilizations to 1500. Grade eight covers the history of the United States from the early inhabitants to Reconstruction. Regardless of the grade-level context, students use the five categories of social studies to explore the content.

The required content is devised so that districts/schools can arrange the content in a way that best meets their curricular needs. For example, the content can be provided in a chronological manner (e.g., United States history from early inhabitants through Reconstruction), or in a thematic way (e.g., world history through a cultural perspective), or another configuration the district/school may choose.

In addition to specifying the essential social studies content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities so important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The content charts included in this document for the middle levels are arranged sequentially by grade. However, it is the prerogative of school councils and local boards of education for schools exempt from school-based decision making to reorganize the content into a format that best meets the needs of their students. This allows schools the opportunity to create integrated, interdisciplinary, or multidisciplinary programs.

Grade 6 Social Studies

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • examine how human and physical geography influence past decisions and events. • analyze the influence of geographic factors on past decisions and events. • evaluate past, current, and future issues of land use (e.g., preservation, development, modification) from geographic perspectives.
Geography (2.19)	**Students will** • examine patterns on Earth's surface, using geographic tools (e.g., maps, globes), to identify where things (e.g., people, places, landmarks) are, how they are arranged, and why they are in particular locations. • analyze the physical and human characteristics of places and regions. • evaluate the impact of human settlement and the interaction of humans with their environments. • use the five themes of geography (location, place, regions, movement, and relationships within places) to organize information about various regions in the modern world. • interpret current events in the United States and the world from a geographic perspective.
Economics (2.18)	**Students will** • understand the concept of scarcity (imbalance between unlimited wants and limited resources) as it applies to individuals, societies, and governments across geographic regions. • explain economic concepts (e.g., supply, demand, money as a form of exchange, goods, services, markets, competition, opportunity cost) as they apply in regard to individuals, societies, and governments. • recognize that all regions must address the questions of production, distribution, and consumption and recognize how their resources are used to produce goods and services. • compare and contrast ways that regions increase their productivity. • examine economic interdependence among regions.
Government and Civics (2.14, 2.15)	**Students will** • compare and contrast forms of government in the modern world. • analyze how governments reflect and impact culture. • examine the relationship between governments and the rights of individuals.
Culture and Society (2.16, 2.17)	**Students will** • examine the concept of culture in the modern world. • compare cultural and social institutions from various regions and how they address human needs. • analyze social interactions, including conflict and cooperation, among individuals and groups around the world.

Grade 7 Social Studies

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • develop a chronological understanding of early world history. • use a variety of tools (e.g., primary and secondary sources, data, artifacts) to understand the interpretive nature (how perceptions of people and passing of time influence accounts of historical events) of world history from early civilizations prior to 1500 A.D. • analyze the social, political, and economic changes in human societies in historical eras prior to 1500 A.D. (Early Human Communities, Early Civilizations and Empires, Western Europe and Feudalism, Middle Ages, Age of Exploration). • examine the impact of significant individuals and groups on world history prior to 1500 A.D. • recognize cause-and-effect relationships and multiple causes of events in early world history.
Geography (2.19)	**Students will** • recognize the importance of physical environments (e.g., natural resources, natural disasters, natural barriers) in the settlement and development of early world civilizations. • examine how technology influences modifications of the physical environment. • explore migration and settlement patterns in early world civilizations.
Economics (2.18)	**Students will** • understand the concept of scarcity (imbalance between unlimited wants and limited resources) in civilizations prior to 1500 A.D. • examine strategies used by individuals, societies, and governments in early world civilizations to address scarcity. • recognize that all societies must address the questions of production, distribution, and consumption. • explain how resources were used in early world civilizations to produce goods and services and explore ways productivity was increased. • examine relationships between personal and national economic activities.
Government and Civics (2.14 & 2.15)	**Students will** • examine the essential roles of government in early civilizations (establishing order, providing security, achieving common goals). • compare and analyze various forms of government in early civilizations prior to 1500 A.D. • investigate the development of human rights prior to 1500 A.D.
Culture and Society (2.16 & 2.17)	**Students will** • examine cultural aspects (e.g., language, art, religious beliefs) of major past civilizations. • investigate the emergence of social institutions and how they responded to human needs. • give examples of cooperation, conflict, and competition that resulted from the interaction of cultures.

Grade 8 Social Studies

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • use a variety of tools (e.g., primary and secondary sources, data, artifacts) to explore the interpretive nature (how perceptions of people and passing of time influence accounts of historical events) of United States history . • develop a chronological understanding of the early history of the United States (early inhabitants to Reconstruction). • recognize cause-and-effect relationships and multiple causes of events in United States history. • examine the impact of significant individuals and groups in early United States history. • analyze the social, political, and economic characteristics of eras in American history to Reconstruction (Land and People before Columbus, Age of Exploration, Colonization, War for Independence, Young Republic, Westward Expansion, Industrialism, Civil War). • recognize the significance of geographical settings and natural resources on historical perspectives and events in early United States history. • examine the impact of technological advances on early United States history. • understand the development of democratic thought in early America.
Geography (2.19)	**Students will** • examine patterns of human movement, settlement, and interaction in early American history and investigate how these patterns influenced culture and society in the United States. • explore reasons behind patterns of human settlement across the United States that resulted in the diverse cultures of the United States. • examine how early United States history was influenced by the physical environment (e.g., natural barriers, natural disasters, natural resources). • investigate how Americans used technology, especially in early American history, to modify the environment.
Economics (2.18)	**Students will** • relate the concept of scarcity (imbalance between unlimited wants and limited resources) to the development of the United States as it applies to individuals, societies, and governments. • analyze economic systems and economic institutions that developed in early United States history. • recognize that government regulation impacts the economy in decisions about productive resources (e.g., natural, human, human-made). • understand how the desire to earn profits influenced the establishment and growth of economic institutions in early United States history.

Grade 8 Social Studies (cont.)

Academic Expectations	Content/Process
Government and Civics (2.14 & 2.15)	**Students will** • understand how the American political system developed through examining colonial roots of representative democracy, reasons for creating an independent country, and purposes of government. • investigate the political process established by the U.S. Constitution, including a system of separation of power with checks and balances and division of power among the states and national government. • understand how the U.S. Constitution has changed over time to adjust to different needs and situations. • examine the rights and responsibilities of individuals in American society by analyzing democratic principles (e.g., liberty, justice, individual human dignity, and the rule of law) as expressed in historical events, historical documents (e.g., the Bill of Rights, Declaration of Independence, U.S. Constitution), and American society.
Culture and Society (2.16 & 2.17)	**Students will** • examine how culture in the United States has been influenced by language, literature, arts, beliefs, and behavior of people in America's past. • investigate how social institutions addressed human needs in early United States history. • analyze social interactions among diverse groups and individuals in United States history. • analyze social interactions, including conflict and cooperation, among individuals and groups in United States History.

High School Education

High School Arts and Humanities

History and Appreciation of Visual and Performing Arts

High School Arts and Humanities
History and Appreciation of Visual and Performing Arts

Content in history and appreciation of visual and performing arts is a graduation requirement for all students. The content builds upon knowledge and skills acquired in middle level arts programs to provide students with a grounding in the arts that enables them to appreciate their cultural and historical heritage.

The content in history and appreciation of visual and performing arts includes the disciplines of dance, music, theatre, art, and literature combined with the humanities. A variety of media, print sources, and participatory activities are blended to provide a connection among periods, styles, and cultures. Students become aware that time, place, and society influence the arts and humanities and that different peoples share common experiences and attitudes. The main focus is to enable students to respond to all art forms through describing, analyzing, interpreting, evaluating, and considering the arts as significant human achievements.

In addition to specifying the essential arts and humanities content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

A local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

History and Appreciation of Visual and Performing Arts

In order for students to appreciate and respond to the arts and humanities, they must understand the historical contexts in which the arts developed and how artists create and perform in various arts disciplines.

Academic Expectations	Content/Process
Arts (1.12-1.15, 2.22-2.26)	**Interrelationships Among The Arts** **Students will** • consider how artists in various cultures use elements and principles of arts to create artistic works. • examine how any artist's performance is influenced by the culture, period, and style in which a work is created. **Historical and Cultural Context** **Students will** • analyze, interpret, and evaluate the creation and performance of works in various arts disciplines. • explain how ideas, thoughts, and traditions of humankind are reflected in arts through historical and cultural contexts.
Dance (1.15, 2.22-2.26)	**Elements of Dance** **Students will** • describe the process of making dance and how elements of dance (space, time, force) are used to create and communicate meaning. • describe and analyze the effect music, costumes, lighting, props, and scenery have on the choreographic idea of dance. • describe how performers use elements of dance in various dance styles and improvisation. **Historical and Cultural Context** **Students will** • describe similarities and differences among dance styles. • compare and contrast how dance is used in thematic, social, historical, and/or political contexts. • analyze, interpret, and evaluate various aspects of a dance performance. • explain how dance reflects various time cultures, periods, and styles. • analyze the way a dance might be viewed from different perspectives (critics, audiences, choreographers, performers). • analyze, interpret, and evaluate roles of compositional forms in dance.

History and Appreciation of Visual and Performing Arts

Academic Expectations	Content/Process
Music (1.14, 2.22-2.26)	**Elements of Music** **Students will** • use elements of music (rhythm, melody, form, timbre, harmony, tempo, dynamics) to describe how musicians compose, perform, and improvise. • interpret music notation and symbols. • describe how musicians apply basic knowledge, skills, and interpretations in musical performances. **Historical and Cultural Context** **Students will** • analyze, interpret, and evaluate various aspects of musical performances. • describe various styles and purposes of music and explain how music reflects historical and cultural influences.
Theatre (2.22-2.26)	**Elements of Drama** **Students will** • apply knowledge and skills of elements of production (set, lighting, costumes, sound, spectacle) to interpret dramatic works. • apply knowledge and skills of elements of performance (e.g., monologue, dialogue, soliloquy, character motivation, voice, sensory recall) to interpret dramatic works. • describe how playwrights, directors, actors, and stage technicians employ elements of production and performance to create and perform dramatic works (e.g., formal theatre, film, television), to express ideas and emotions, and to achieve a desired effect or response from audiences. • apply knowledge and skills of dramatic elements (e.g., exposition, development, climax, reversal, denouement, protagonist, antagonist, tension, foreshadowing) to interpret dramatic works. • identify skills and training necessary for a variety of careers related to drama. • analyze descriptions, dialogue, and actions within scripts or texts to discover, describe, and justify character motivation. • describe, model, and use theatre etiquette. **Historical and Cultural Context** **Students will** • identify, analyze and classify dramatic works from various periods, styles, and cultures by considering cultural and symbolic clues such as style, setting, costume, movement, language, and staging. • analyze influences of history and culture in the writing, production, and performance of a dramatic works. • compare how dramatic works from various cultures and historical periods reveal universal themes. • describe and compare interactions between performing (e.g., theatre, dance, music) and visual artists and their audiences.

History and Appreciation of Visual and Performing Arts

Academic Expectations	Content/Process
Visual Arts (1.13, 2.22-2.26)	**Visual Arts** **Students will** • describe how visual artists use elements of art, principles of design, processes (e.g., drawing, painting, textiles), media (e.g., paint, fibers, wood, clay), and techniques to create art works. **Historical and Cultural Context** **Students will** • analyze, interpret, and evaluate a variety of art works. • explain how visual artworks reflect cultures, time periods, and styles.

High School English/Language Arts

High School English/Language Arts

Four credits of English are required for high school graduation. These courses are English I, English II, English III, and English IV, taken in sequence, as each is a prerequisite to the next. A local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

Each of the four required courses blends the strands of reading, writing, speaking, listening, observing, and using technology as a communication tool. The content has been structured so that students build on their background from the primary, intermediate, and middle grades, as well as increase their competence in all areas of communication throughout their high school experience. Each of the five strands begins with a statement in boldface type which describes the general content of that strand. The skills and processes in the bulleted lists provide further focus for the minimum content to be covered at each grade level. Statements in boldface type and the bulleted lists must be combined for a complete description of the grade level content. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

The courses are designed to present a wide range of reading experiences with print and nonprint materials that have literary, informational, persuasive, and practical purposes. The courses also require students to use the writing process and criteria for effective writing to demonstrate their abilities to write in a variety of forms and for multiple audiences and purposes. Students use writing-to-learn and writing-to-demonstrate-learning strategies to make sense of their reading and thinking experiences. Although academic expectations for the arts and humanities have been incorporated into the reading and writing strands, they are not intended to be the primary focus of English/Language Arts instruction. Speaking, listening, and observing skills are used to communicate information for a variety of authentic purposes. In addition, students continue to integrate inquiry skills and technology to communicate ideas. Furthermore, the skills and processes from Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge) are incorporated throughout the content of English/Language Arts.

English I

Academic Expectations	Content/Process
Reading (1.2) **Arts & Humanities (2.24, 2.25)**	**Students identify and apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/ workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • read and analyze informational material (e.g., biographies, autobiographies, periodicals). • respond critically to a variety of literary genres (e.g., novels, essays, short stories, poetry, drama) and styles by applying a knowledge of characteristics of those genres and literary terms and concepts (e.g., theme, character, point of view, figurative language) and by making connections to personal experiences. • identify writers' purposes and techniques used to communicate with different audiences. • select and read materials for enjoyment. • understand vocabulary in context (e.g., decoding, jargon, dialect, idioms, subtleties of meaning).
Academic Expectations	**Content/Process**
Writing (1.11) **Arts & Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings. These writings, which address a variety of authentic purposes and audiences, must be in a variety of forms, including personal, literary, and transactive, and reflective pieces. Students will** • use writing-to-learn strategies such as notetaking, reflective response, response journals, and logs to make personal connections, to form ideas, and to complete tasks (additional supporting Academic Expectations 1.10, 6.3). • apply writing-to-demonstrate-learning strategies in situations such as essays, essay tests, and open-response questions. • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) that demonstrate independent thinking about content and structure observed in informational and literary reading. • write personal pieces (e.g., personal narratives, memoirs, personal essays) to communicate ideas. • write literary pieces (e.g., stories, poems, scripts, plays) that apply characteristics, elements, and techniques of genres read (additional supporting Academic Expectation 5.2). • use organizational signals (e.g., bullets, lists, layout, charts, graphs, embedded visuals) to meet readers' needs. • critique own and others' works by applying the criteria for effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

English I (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students make sense of a variety of messages by observing and listening; and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • demonstrate awareness of audience, purpose, and situation in oral presentations both with and without technology. • apply appropriate verbal and nonverbal elements (e.g., gestures, facial expressions, tone, volume, rate) to enhance delivery. • apply strategies for critical listening and observing skills to complete products (additional supporting Academic Expectation 5.1). • use correct and appropriate language in students' own speaking.
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information, to learn, and to communicate ideas for specific purposes. Students will** • access appropriate print and nonprint (e.g., computers, electronic media, interviews) resources for group, collaborative, and/or independent inquiry projects.
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use technology to complete authentic tasks.

English II

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students identify and apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • read and analyze practical/workplace materials (e.g., warranties, recipes, forms, memoranda, consumer texts, manuals). • read and analyze classic and contemporary persuasive materials (e.g., editorials, articles, advertisements, essays, speeches). • respond critically to and analyze a variety of literary genres (e.g., novels, essays, short stories, poetry, drama) from various periods (e.g., Renaissance, Romantic, Contemporary). • interpret structure and organization (e.g., page layout/format, organizational aids, graphics) from selected readings. • identify authors' points of view, persuasive and propaganda techniques, and facts/opinions, especially in persuasive passages. • select and read materials for enjoyment. • understand vocabulary in context (e.g.,"loaded" words, specialized vocabulary, connotation/denotation, jargon).
Academic Expectations	**Content/Process**
Writing (1.11)	**Students use the writing process and criteria for effective writing in pieces developed over time as well as in on-demand writing situations, to compile a collection of writings. These writings, which address a variety of authentic purposes and audiences, must be in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • use writing-to-learn strategies such as notetaking, reflective response, response journals, and logs to make personal connections, to form ideas, and to complete tasks (additional supporting Academic Expectations 1.10, 6.3). • apply writing-to-demonstrate-learning strategies in situations such as essays, essay tests, and open-response questions. • write transactive pieces (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) that demonstrate independent thinking about content and structure observed in practical/workplace and persuasive reading. • write personal pieces (e.g., personal narratives, memoirs, personal essays) to communicate ideas. • use organizational signals (e.g., bullets, lists, layout, charts, graphs, embedded visuals) in transactive writing to accomplish specific purposes and meet readers' needs. • apply appropriate source documentation. • critique own and others' works based on criteria for effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

English II (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students make sense of a variety of messages by observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • analyze persuasive techniques when listening and observing to make informed decisions, and apply persuasive techniques when speaking (additional supporting Academic Expectations 5.1, 5.4). • develop and apply appropriate verbal and nonverbal elements of delivery (e.g., gestures, facial expressions, tone, volume, rate). • practice critical listening, observing, and thinking skills to make informed judgments of and responses to persuasive media and performances (additional supporting Academic Expectations 5.1, 5.4). • apply language structure and conventions for correctness, style, and tone in students' own speaking.
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information, to learn, and to communicate ideas for specific purposes. Students will** • access, compare, and document multiple sources of print and nonprint (e.g., computers, electronic media, interviews) resources for group, collaborative, and/ or independent inquiry projects. • evaluate credibility of sources.
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes.** **Students will** • use appropriate practices, procedures, skills, and strategies to access technology for specific purposes. • use technology to present information for authentic audiences and purposes.

English III

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/ workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • analyze and evaluate the four types of reading materials (literary, informational, practical/workplace, and persuasive) in both print and nonprint (e.g., computer, media) formats. • read and analyze classic and contemporary literature as representative of the many dimensions of the human experience. • respond critically to a variety of literary genres (e.g., novels, essays, short stories, poetry, drama) and explain how they reflect periods (e.g., Renaissance, Romantic, Contemporary), styles, and cultures. • apply a knowledge of literary terms and concepts (e.g., theme, symbolism, tone) to analyze literature. • apply analytical reading skills to make connections to the real world. • select and read materials for enjoyment. • interpret multiple meanings of vocabulary in context.

Academic Expectations	Content/Process
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings. These writings, which address a variety of authentic purposes and audiences, must be in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • use writing-to-learn (e.g., notetaking, reflective response, response journals, logs) as a basis for developing literary writing (e.g., stories, poems, scripts, plays). • use writing-to-demonstrate-learning strategies in situations such as essays, essay tests, and open-response questions. • continue to develop transactive writing (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) which applies knowledge of conventions of various print and nonprint (e.g., computers, electronic media) resources. • continue to develop personal (e.g., personal narratives, memoirs, personal essays) and literary writing. • tailor use of language and conventions (e.g., mechanics, formatting, grammar) for a variety of audiences, purposes, and situations. • critique own and others' works based on criteria for effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

English III (cont.)

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students make sense of a variety of messages by observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • use effective speaking skills and techniques for oral presentations to specific audiences for specific purposes. • apply critical listening/observing skills to analyze nonprint (e.g., computers, electronic media) materials (additional supporting academic expectations 5.1). • collaborate to solve problems (e.g., panel discussions, simulations) (additional supporting Academic Expectation 5.5).
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information, to learn, and to communicate ideas for specific purposes. Students will** • locate and analyze a variety of appropriate sources to obtain information for specific needs. • paraphrase and summarize to adapt information for specific purposes (additional supporting Academic Expectation 5.3). • use criteria to evaluate the appropriateness of material accessed through technology for a particular purpose (additional supporting Academic Expectation 5.4).
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • use a variety of multimedia tools (e.g., audio, video, computer presentation programs) to enhance presentations.

English IV

Academic Expectations	Content/Process
Reading (1.2) **Arts and Humanities (2.24, 2.25)**	**Students apply a variety of appropriate reading strategies to make sense of a variety of print and nonprint texts (literary, informational, practical/workplace, and persuasive) to reach personal goals, to understand the human experience, to create products, to accomplish authentic tasks, and to develop ideas in written/oral responses. Students will** • analyze, synthesize, and evaluate the four types of reading materials (literary, informational, practical/workplace, and persuasive) in both print and nonprint (e.g., computer, electronic media) formats to complete tasks and projects (additional supporting Academic Expectation 5.1). • respond critically to a variety of literary genres (e.g., novels, essays, short stories, poetry, drama), making connections among different periods, styles, cultures, and ethnicities. • continue to analyze authors' uses of literary terms and concepts (e.g., theme, symbolism, tone) from a variety of classic and contemporary readings. • select and read materials for enjoyment. • apply reading skills to complete diverse tasks and projects which use materials relevant to individual postsecondary interests.
Academic Expectations	**Content/Process**
Writing (1.11) **Arts and Humanities (2.22)**	**Students use the writing process and criteria for effective writing in pieces developed over time, as well as in on-demand writing situations, to compile a collection of writings. These writings, which address a variety of authentic purposes and audiences, must be in a variety of forms, including personal, literary, transactive, and reflective pieces. Students will** • apply writing-to-learn strategies such as notetaking, reflective response, response journals, and logs and writing-to-demonstrate-learning strategies in situations such as essays, open-response questions, and essay tests in multiple contexts (additional supporting Academic Expectation 1.10). • continue to develop transactive writing (writing produced for authentic purposes and audiences beyond completing an assignment to demonstrate learning) which applies knowledge of conventions of various print and nonprint materials (e.g., computer, media). • continue to develop personal (e.g., personal narratives, memoirs, personal essays) and literary writing (e.g., stories, poems, scripts, plays). • apply features of various genres (e.g., poems, short stories, plays, articles, speeches, brochures, manuals) in writings. • use handbooks, style manuals, and models to produce correct and effective communications and to document appropriately. • apply writing process and criteria for effective writing to compile a collection of writings developed over time, as well as in on-demand writing situations. • critique own and others' works based on criteria for effective writing, including awareness of audience and purpose, organization, idea development, and standards of correctness (e.g., mechanics, grammar, spelling).

Academic Expectations	Content/Process
Speaking/ Listening/ Observing (1.3, 1.4, 1.12)	**Students make sense of a variety of messages by observing and listening and apply techniques for effective speaking to communicate ideas and information for a variety of authentic purposes, situations, and audiences. Students will** • use strategies for effective oral presentations to complete tasks or projects. • apply and respond to verbal and nonverbal elements of delivery (e.g., gestures, facial expressions, tone, volume, rate). • apply strategies for critical listening and observing skills to complete tasks or projects (additional supporting Academic Expectation 5.1). • evaluate oral presentations, including those using multimedia.
Academic Expectations	**Content/Process**
Inquiry (1.1)	**Independently and collaboratively, students use a variety of resources, methods, and research tools to access ideas and information, to learn, and to communicate ideas for specific purposes. Students will** • collect, analyze, synthesize, and evaluate information and ideas from a variety of sources to complete independent inquiry projects and tasks (additional supporting Academic Expectation 5.1). • engage in decision-making, planning, and organizational procedures to make informed choices (additional supporting Academic Expectations 5.4, 5.5). • apply logical and critical thinking strategies to accomplish projects and tasks (additional supporting Academic Expectation 5.1).
Academic Expectations	**Content/Process**
Technology as Communication (1.16)	**Students use available and emerging technology to gather, organize, manipulate, and express ideas and information for a variety of authentic purposes. Students will** • retrieve and transmit communications relevant to assigned tasks. • develop and evaluate the use of appropriate technology for selected purposes.

High School Health Education

High School Health Education

A one-half credit course in health education is required for high school graduation. A local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

Every individual is required to make daily decisions regarding health issues that affect their immediate and long-term health. Maintaining a healthy way of life requires a balance of physical, mental, emotional, and social well-being. This health education course provides students with the knowledge and skills necessary to confront health-related issues. Some of the necessary skills include decision making, goal setting, self-assessment, communication, and self-management. Health education is an essential component of a total education program and an integral part of a student's growth, development, and transition into adulthood.

The required high school health education course emphasizes decision-making skills as related to the following essential health content areas: physical wellness, nutrition, safety and first aid, exercise, fitness, and human growth and development. Other essential components of the course include stress management, conflict resolution, substance abuse and goal setting. Not to be excluded are mental and emotional illnesses, community resources and services, and health-related consumer choices.

The vertical column on each chart contains Kentucky's academic expectations to be taught in the course. In addition to specifying health education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

High School Health Education

Academic Expectations	Content/Process
Individual Well-Being (2.29)	**Students will** • analyze individual actions and interactions within groups. • explain how the functioning of body systems (e.g., reproductive, digestive, circulatory) are interrelated. • explain the process of human growth and development (e.g., reproductive system, life cycle, changing roles and responsibilities, social skills development, aging). • identify abstinence as the only sure means of preventing pregnancy and STDs.
Consumer Decisions (2.30)	**Students will** • develop and use strategies for evaluating products and services. • evaluate influences of advertising on consumer choices. • make effective consumer decisions.
Physical Wellness (2.31)	**Students will** • develop sound nutritional practices (e.g., meal planning, food selection, reading labels, weight control, special nutritional needs). • evaluate individual wellness (e.g., benefits of improving body image, stress reduction, assessing fitness levels, fitness myths, evaluation of activities for effectiveness). • describe safety prevention, first-aid procedures, and equipment used for common injuries. • explain procedures for handling various emergency situations. • analyze risk-taking choices and actions. • explain disease transmission, prevention, and control (e.g., HIV/AIDS, STDs, common non-communicable diseases, heart diseases, cancer, diabetes). • evaluate personal health practices (e.g., diet; rest; exercise; personal cleanliness; care of eyes, ears, teeth, skin).
Mental Wellness (2.32)	**Students will** • determine sources of stress and identify stress related illnesses. • analyze and use stress management strategies. • evaluate conflict resolution and violence prevention strategies (e.g., types of conflict, risk factors, dealing with anger, alternatives to fighting). • adopt success-building strategies (e.g., goal setting, long-term planning, decision-making strategies, effective communication skills, time management, identification and use of resources). • research mental and emotional illnesses. • research substance abuse. • define abuse (e.g., physical, emotional, sexual) and determine strategies for prevention. • evaluate health behaviors and attitudes of peers.
Community Services (2.33)	**Students will** • describe community resources and services (e.g., basic medical care, roles and responsibilities of community health systems, medical insurance, emergency hot lines). • analyze community health standards and regulations (e.g., air/water quality, immunization, health and safety protection of citizens). • identify ways to protect the environment (e.g., local environmental issues, toxic chemicals, water and air pollution, recycling).

High School Mathematics

High School Mathematics

High school graduation requirements include three mathematics credits, Algebra I, geometry, and a mathematics elective. The minimum content for Algebra I and geometry is based on Kentucky's academic expectations and is specified in the following content charts. Although the elective course has not been specified by the Kentucky Board of Education, the content of that course should extend beyond middle level mathematics concepts. Together the three courses, Algebra I, geometry and an elective, address Kentucky's Academic Expectations 1.5-1.9, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12, and 2.13.

Schools may configure the mathematics content in multiple ways. For example, schools could require Algebra I and geometry, as specified in the *Program of Studies*, and a third mathematics course designed by the school. Or, schools could require Integrated Math I, II, and III using all the content from both the Algebra I and geometry charts and additional mathematics such as data analysis. In addition, a local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

Each content chart is designed to present the mathematical topics that are fundamental to mathematical literacy and mathematical power for all high school graduates. Each content statement is interrelated with other statements, and designed to be delivered in meaningful contexts, developing mathematical problem solving, communication, reasoning, and connections. Making connections enhances the understanding of relationships between algebra and arithmetic, geometry, probability, and statistics, as well as to other subject areas through practical applications.

High school problem solving, mathematical communication, and mathematical reasoning should be a part of the mathematics curriculum. **Problem solving** includes modeling and formulating problems based in real-world situations, within and outside mathematics, and aids in investigating and understanding mathematical content. **Mathematical communication** includes both words and symbols, enabling students to clarify their thinking, create definitions, share mathematical ideas, ask questions, and develop facility in using mathematical notation (letters and marks used in mathematics to name numbers, operations, sets, relations, and so on). **Mathematical connections** include the use of equivalent representations of a concept or a procedure and extend to both topics within mathematics and to other disciplines. **Mathematical reasoning** includes the use of logical skills in the context of testing conjectures, creating counter examples (an example that shows a general statement to be false), and composing and understanding valid arguments.

The content statements are organized under common topic headings on each course content charts. Each topic organizer is followed by the content statements and relevant academic expectations. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive. High school mathematics programs include exploration, communication, mathematical tools, manipulatives, (concrete materials) calculators and graphing utilities, hands on activities, group work, and exploring useful mathematics. The students' interrelated mathematical explorations and experiences contribute to their confidence and ability to understand and address real, quantitative, scientific, and technological issues. Through these explorations and experiences, the mathematics content provides connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge).

Algebra I

This chart lists the concepts in an Algebra I course. High school mathematics programs are grounded in Academic Expectations 1.5 to 1.9, Mathematical Communication and Reasoning; 1.16, Technology; 2.7, Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate Knowledge. The four processes below should be woven throughout the Algebra I class.

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
Linear Equations, Inequalities, and Functions (2.7, 2.8, 2.9, 2.10, 2.11, 2.12)	**Students will** • solve one-variable equations using manipulatives, symbols, procedures, and graphing. • solve two-variable linear equations using real numbers, real number operations, field properties, and order of operations. • write and solve linear sentences, describing real-world situations by using and relating formulas, tables, graphs, and equations. • use characteristics of the graphs of linear functions, such as slope and intercepts, transformations. • collect, organize, and display two-variable data, and use a line of best fit as a model to predict. • connect the skills to solve linear equations to solve linear inequalities. • write and solve linear inequalities.			
Non-Linear Functions: Quadratic, Exponential, and Absolute Value (2.7, 2.8, 2.9, 2.11, 2.12)	**Students will** • use the skills learned to solve linear equations and inequalities to solve numerically, graphically, or symbolically non-linear equations such as quadratic and exponential equations. • collect, organize, and display two-variable data, and use a curve of best fit as a model to make predictions. • extend ideas of transformations of linear equations, such as vertical and horizontal shifts, to transformations of nonlinear equations.			
Proportional Reasoning (2.7, 2.8, 2.9, 2.11, 2.12)	**Students will** • write and solve proportion sentences. • use proportional reasoning (ratios and proportions) to solve real-world problems. • solve problems that have direct or inverse relationships for any variable.			
Sequences (2.7, 2.8, 2.9, 2.11, 2.12)	**Students will** • see the patterns in arithmetic sequences and geometric sequences using recursion (formulas expressing each term as a function of one or more of the previous terms). • see patterns in other sequences (e.g., quadratic, cubic). • relate the patterns in arithmetic sequences to linear equations. • relate the patterns in geometric sequences to exponential equations (e.g., squared, cubed, nth power).			
Probability (2.7, 2.8, 2.11, 2.12, 2.13)	**Students will** • use strategies such as combinations and permutations (arrangements) to count discrete quantities (the study of mathematical properties of sets and systems that have a countable number of elements). • design and conduct probability simulations, and interpret the results.			

Geometry

This chart lists the concepts in a geometry course. High school mathematics programs are grounded in Academic Expectations 1.5 to 1.9; Mathematical Communication and Reasoning; 1.16, Technology; 2.7,Number Concepts; 2.8, Mathematical Procedures; 2.9, Space and Dimensionality; 2.10, Measurement; 2.11, Change; 2.12, Mathematical Structure; 2.13, Probability and Statistics; Goal 5, Think and Solve Problems; and Goal 6, Connect and Integrate Knowledge.

Academic Expectations	Content/Process			
	Problem Solving	**Reasoning**	**Mathematical Communications**	**Connections**
General Relationships (2.7,2.8,2.9,2.10)	**Students will** • find angle relationships such as vertical angles, linear pairs, complementary angles, and supplementary angles. • identify relationships between and among points, lines, and planes, such as betweenness of points, midpoint, distance, collinear, coplanar, parallel, and skew lines. • find the intersection of lines, planes, and solids. • connect geometric diagrams with algebraic representations. • integrate constructions such as segments and angles, segment bisectors, perpendiculars, angle bisectors, parallel lines, circles, arcs, and polygons. • describe, draw, and construct two-dimensional and three-dimensional figures.			
Relationships in Triangles (2.9, 2.10)	**Students will** • use angle and side relationships such as triangle sum theorem, triangle inequalities, isosceles and equilateral triangle properties, altitude, and median. • use Pythagorean theorem and its converse. • use right triangle relationships such as trigonometric ratios (45-45-90 and 30-60-90 triangles).			
Quadrilateral Relationships (2.9, 2.10)	**Students will** • use properties of quadrilaterals such as classification.			
Other Polygons and Circles (2.9, 2.10)	**Students will** • use properties of other polygons. • use properties of circles, arcs, chords, central angles, inscribed angles, and concentric circles. • use inscribed and circumscribed polygons.			
Congruence and Similarity (2.8, 2.9, 2.10, 2.11)	**Students will** • prove triangles and other polygons congruent and similar, and explore corresponding parts relationships. • use proportional reasoning to solve real-world problems, to do indirect measurements, and to make scale drawings.			
Measurements (2.9, 2.10, 2.13)	**Students will** • use relationships among one-, two-, and three-dimensional measures. • use perimeter, circumference, and area of planar regions to determine volume and surface area of solids. • convert from one measure to another within the same system.			
Coordinate Geometry and Transformations (2.7, 2.8, 2.9, 2.10)	**Students will** • represent geometric figures and properties using coordinates. • connect the concepts of slope, distance, and midpoint to coordinate geometry. • use reflections, translations, rotations, and dilations. • explore concepts of vectors. • use the relationship between a figure and its image under a transformation (congruence, similarity, size, and scale changes).			

High School Physical Education

High School Physical Education

A one-half credit course is required in physical education for high school graduation. A local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

The purpose of this physical education course is to make a lasting difference in the physical, mental, emotional, and social well-being of students. Therefore, students learn to use the decision-making process to make informed choices regarding lifetime physical activities that meet their personal needs. Physical activities provide students opportunities to develop efficient movement patterns and learn concepts of body awareness, space, and effort. The development of body systems that operate efficiently and the application of interpersonal skills to solve problems provide the basis for students to become capable, fit adults.

The required high school physical education course emphasizes student participation in meaningful physical activities (e.g., exercise forms, creative/rhythmic movement, sports, games) on a regular basis. The relationship of physical activity to a healthy way of life is stressed. This course provides students with opportunities to develop and refine necessary psychomotor skills, to improve and maintain physical wellness, and to participate in lifetime physical activities.

The vertical column on each chart contains Kentucky's academic expectations to be taught in the course. In addition to specifying physical education content, the bulleted items in the charts provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a comprehensive link between essential content and the skills and abilities important to learning. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

All physical education courses taught in the state of Kentucky must be in compliance with P.L. 105-17 and Title IX and shall not include practice for or participation in interscholastic athletics.

High School Physical Education

Academic Expectations	Content/Process
Physical Wellness (2.31)	**Students will** • describe how the benefits of exercise (e.g., disease prevention, self-esteem, improved fitness, weight control, improved appearance, higher energy level) are interrelated. • apply principles of exercise (e.g., frequency, intensity, duration, overload principle, progression, specificity, target zone). • develop health-related fitness (e.g., cardiovascular endurance, muscular strength and endurance, flexibility, body composition). • apply nutritional concepts (e.g., body composition, weight control, food/fluid selection, caloric balance) in meal planning. • establish, develop, and implement a lifetime personal fitness and activity plan.
Psychomotor Development (2.34)	**Students will** • apply movement concepts (e.g., space awareness, effort, formations that occur between objects and people) in various games, sports, and rhythmic activities. • demonstrate principles of motor skill refinement (e.g., accuracy, techniques, physics). • analyze specialized movement sequences and patterns to make recommendations for improvement. • develop specialized motor skills (combination of locomotor, object manipulation, and movement concepts) for participation in rhythmic movement; individual, dual, and team games; and activities (e.g., baseball, soccer, dance, basketball). • refine techniques to achieve consistency in performance of fundamental skills (e.g., throwing, catching, kicking, striking, dribbling) in games and activities. • analyze object manipulation to make recommendations for improvements.
Lifetime Activity (2.35)	**Students will** • describe benefits (e.g., stress management, improved health, disease prevention, social interaction) of regular participation in physical activities. • apply strategies for successful participation in lifetime activities and sports (e.g., bowling, aerobics, tennis, golf, running). • refine techniques (e.g., practice, repetition, preparation) in lifetime activities and sports to enhance performance. • demonstrate sportsmanship (e.g., fair play, following rules, accepting officials' decisions, controlling personal responses) applicable to participants and spectators.

High School Science

High School Science

High school students will continue concrete hands-on experiences that require a minds-on approach. These concrete experiences will be developed into abstract concepts appropriate for high school students. For example, the properties of substances that students directly observed in grades P-8 can now be related to the structure of substances that cannot be directly observed (e.g., atomic and molecular structure). Another example is that the study of astronomy moves from the solar system to the universe. High school students' use of scientific inquiry will become more extensive (e.g., the study of the universe will be based on observational evidence, science concepts, and logic). They will develop a conceptual understanding of science rather than knowing a number of unrelated facts. They also will gain knowledge and abilities in applying and connecting scientific concepts to real life.

All students are required to take three credits of science in order to graduate from high school. The three science credits shall contain the physical, earth/space, and life science concepts shown in the **conceptual understandings** chart. These concepts will be taught through scientific inquiry and applications and connections. Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link physical, earth/space, and life science concepts to scientific inquiry and applications and connections.

Scientific inquiry is identical to Academic Expectation 2.1: "Students understand scientific ways of thinking and working and use those methods to solve real-life problems." Scientific inquiry is not a standard "scientific method"; rather it includes a variety of types of investigations. Scientific inquiry requires the use of science concepts to design investigations and to develop explanations from the results of those investigations. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are reflected in scientific inquiry.

Scientific applications/connections show science concepts in a variety of contexts to demonstrate that science is relevant to individuals and society. Scientific applications/connections show how science concepts are connected to real life (e.g., how science and technology effects society) and how science can be used to solve real life problems (e.g., personal and community health, environmental quality). Kentucky's Academic Expectations 2.2 through 2.6 provide ways of thinking that help students link science concepts to scientific applications/connections. Kentucky's Learning Goal 5 (Think and Solve Problems) and Learning Goal 6 (Connect and Integrate Knowledge) are also reflected in scientific applications/connections.

A local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same applicable academic expectations. Examples in parentheses throughout the document (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

High School Science

Academic Expectations	Content/Process
Scientific Inquiry **Scientific Ways of Thinking and Working (2.1)**	**Students will** • identify and refine questions and identify scientific concepts to guide the design of scientific investigations. • design and conduct different kinds of scientific investigations for a wide variety of reasons. • use equipment (e.g., microscopes, lasers), tools (e.g., beakers), techniques (e.g., microscope skills), technology (e.g., computers), and mathematics to improve scientific investigations and communications. • use evidence, logic, and scientific knowledge to develop and revise scientific explanations and models. • communicate designs, procedures, and results of scientific investigations. • review and analyze scientific investigations and explanations of others.

Academic Expectations	Content/Process
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Physical Science** **Structure of Atoms** **Students will** • analyze atomic structure and electric forces. • examine nuclear structure, nuclear forces, and nuclear reactions (e.g., fission, fusion, radioactivity). **Structure and Properties of Matter** **Students will** • investigate how the structure of matter (e.g., outer electrons, type of bond) relates to chemical properties of matter. • investigate how the structure of matter (e.g., constituent atoms, distances and angles between atoms) relates to physical properties of matter. **Chemical Reactions** **Students will** • investigate chemical reactions and the release or consumption of energy. • examine the transfer of electrons or hydrogen ions between reacting ions, molecules, or atoms. • investigate factors (e.g., temperature, catalysts) affecting reaction rates. **Motions and Forces** **Students will** • investigate forces and the effects of forces on the motion of objects. • investigate gravitational and electromagnetic forces. **Conservation of Energy and the Increase in Disorder** **Students will** • examine how energy is transferred (e.g., collisions, light waves) and recognize that the total energy of the universe is constant. • distinguish between types of energy (e.g., kinetic energy, potential energy, energy fields). • examine how everything tends to become less organized and less orderly over time (e.g., heat moves from hotter to cooler objects). **Interactions of Energy and Matter** **Students will** • investigate energy transfer caused when waves and matter interact (e.g., atoms and molecules can absorb and emit light waves). • investigate electrical energy and conductivity through matter.

Academic Expectations	Content/Process
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Earth / Space Science** **Energy in the Earth system** **Students will** • examine internal and external sources of energy. • examine how internal sources of energy propel crustal plates across the face of the globe. • examine how external sources of energy produce winds and ocean currents. • examine how external sources of energy determine global climate. **Geochemical Cycles** **Students will** • recognize that the Earth contains a fixed amount of each stable chemical atom or element. • analyze Earth's chemical reservoirs and recognize that each element can exist in several reservoirs (e.g., carbon in carbon dioxide reservoirs and carbonate reservoirs). • investigate how Earth's internal and external sources of energy drive geochemical cycles (e.g., carbon moving from carbon dioxide reservoirs to carbonate reservoirs). **The Formation and Ongoing Changes of the Earth System** **Students will** • describe the formation of the solar system. • investigate how to estimate geologic time (e.g., observing rock sequences, radioactive dating). • examine and interpret ongoing changes of the Earth system (e.g., earthquakes, mountain building). **The Formation and Ongoing Changes of the Universe** **Students will** • describe theories of the formation of the universe (e.g., big bang theory). • describe the formation of the stars. • examine stars (e.g., energy production, formation of elements).

Academic Expectations	Content/Process
Conceptual Understandings **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Life Science** **The Cell** **Students will** • investigate cell structures, their functions (e.g., chemical reactions), and how DNA guides their functions. • investigate cell regulation, differentiation, and how the process of photosynthesis provides a vital connection between the Sun and energy needs of living systems. **The Molecular Basis of Heredity** **Students will** • investigate how DNA carries instructions for specifying characteristics of organisms. • investigate encoding and replication of genetic information. **Biological Change** **Students will** • examine how species change over time. • examine diversity of organisms and biological classification. **The Interdependence of Organisms** **Students will** • investigate the cycle of atoms (e.g., carbon) and molecules (e.g., nitrogen, carbon dioxide, oxygen) within the biosphere. • analyze energy flow through ecosystems. • examine interrelationships and interdependencies of organisms in ecosystems and the factors that influence the interactions between organisms. • explore how human activities alter ecosystems. **Matter, Energy, and Organization in Living Systems** **Students will** • recognize that living systems require continuous input of energy. • investigate photosynthesis, cellular respiration, and the energy relationships among them. • analyze the flow of matter and energy through and between living systems and environments. **The Behavior of Organisms** **Students will** • investigate behavioral responses to internal changes and external stimuli. • analyze how patterns of behavior ensure reproductive success.

High School Science

Academic Expectations	Content/Process
Applications/ Connections **Patterns, Systems, Scale and Models, Constancy, and Change Over Time (2.2-2.6)**	**Students will** • apply scientific inquiry and conceptual understandings to solving problems of technological design (e.g., styrofoam cups, transistors, computer chips). • examine the interaction between science and technology. • explore the impact of scientific knowledge and discoveries on personal and community health. • recognize how science influences human population growth. • use science to analyze the use of natural resources by an increasing human population. • investigate how science can be used to solve environmental quality problems (e.g., overconsumption, food distribution). • use science to investigate natural hazards and human-induced hazards. • analyze how science and technology are necessary but not sufficient for solving local, national, and global issues. • analyze the role science plays in everyday life and compare different careers in science. • recognize that scientific knowledge comes from empirical standards, logical arguments, skepticism, and is subject to change as new evidence becomes available. • investigate advances in science and technology that have important and long-lasting effects on science and society (e.g., Newtonian mechanics, plate tectonics, germ theory, medical and health technology).

High School Social Studies

High School Social Studies

Three credits in social studies are required for high school graduation. These credits must incorporate the five social studies disciplines of U.S. history, economics, government, world geography, and world civilization. Districts and schools can arrange the essential content within the three-credit requirement to best meet their needs. A local board of education may substitute an integrated, applied, interdisciplinary, or higher level course for a required course if the alternative course provides rigorous content and addresses the same academic expectations.

The high school social studies program is designed to provide an integrated and comprehensive course of study. Each discipline description contains connections to other areas of the social studies. Because of this design, students will experience the richness and complexity of the social studies.

The essential content descriptions for the five social studies disciplines are not course descriptions. Rather, they are descriptions of the essential content to be found in each of the five specified areas of the social studies. Bulleted points denote the required content. In addition, each content description includes connections to other social studies areas to create an integrated focus. Lists in parentheses (designated with an "e.g.") are suggestions for instruction and are not meant to be comprehensive.

In addition to specifying social studies content, the bulleted items provide connections to Kentucky's Learning Goal 5 (Think and Solve Problems) and Goal 6 (Connect and Integrate Knowledge). These connections provide a more comprehensive link between essential content and the skills and abilities important to learning.

U.S. History
Reconstruction - Present

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • use a variety of tools (e.g., primary and secondary sources, data, artifacts) to explore the interpretive nature of the history of the United States from Reconstruction to the present. • examine significant eras of United States history (Reconstruction, Industrialization, Progressive Movement, World War I, Great Depression, New Deal, World War II, Cold War, 20th Century) to develop chronological understanding and recognize cause-and-effect relationships and multiple causation. • examine the impact of significant individuals and groups. • analyze the social, political, and economic characteristics of various eras in the history of the United States. • recognize the significant impact of geography and natural resources on historical perspectives and events. • examine the impact of advances in research, science, and technology on historical events and American society. • trace the changing role of the United States in the global community from isolationism to a major world power.
Geography (2.19)	**Students will** • understand that regions are areas on the surface of the Earth that are defined by certain unifying characteristics, both physical and human. • use geographic knowledge to analyze the location and distribution of human features in the United States. • understand how factors such as locations of resources and markets, transportation, and technology influence the placement, size, and function of human settlements and patterns of movement. • understand how changing resource needs and international trade relationships produce conflict and cooperation. • explore how modifications of the physical environment have impacted life in the United States. • examine how immigration and movement of populations within the United States have impacted the culture of the United States.
Economics (2.18)	**Students will** • examine the transformation of the United States from a rural economy to an industrial economy to a leader in the global economy. • trace the economic development of the United States from laissez-faire economy to one with government intervention to a mixed economy. • analyze changing relationships among business, labor, and government. • illustrate how technology has changed and continues to change the United States economy.

U.S. History (cont.)

Academic Expectations	Content/Process
Government and Civics (2.14, 2.15)	**Students will** • trace the political development in the United States including the changing roles of state and federal government and the relationships among the branches of government. • recognize how the U.S. Constitution, significant legislation, and landmark Supreme Court decisions have impacted American society. • analyze roles of political parties and citizen participation in a democratic society. • examine rights and responsibilities of individuals in American society and the development of democratic principles (e.g., liberty, justice, equality, individual human dignity, the rule of law).
Culture and Society (2.16, 2.17)	**Students will** • explore how people and cultures of many countries, races, and religious traditions have contributed to the American experience. • examine ways in which cooperation, conflict, and competition occur as cultures emerge. • analyze origins and consequences of stereotyping, prejudice, and discrimination. • examine the social transformations reflected in the struggles for racial and gender equity and the extension of civil liberties. • recognize the roles social institutions (e.g., family, religion, education, government, economy) have played in American life.

World Civilization
1500 - Present

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • understand the interpretive nature of world history. • use a variety of tools (e.g., primary and secondary sources, data, artifacts) to explore world civilizations. • examine significant eras (i.e., Renaissance, Reformation, Age of Exploration, Age of Revolution, Nationalism and Imperialism, Technological Age of world civilization) to develop chronological understanding and recognize cause-and-effect relationships and multiple causation. • examine the impact of significant individuals and groups. • analyze social, political, and economic characteristics of various eras and civilizations in world civilization. • recognize the significance of geography and natural resources in historical perspectives and events. • trace the impact of advances in research, science, and technology on historical events and human societies. • analyze the challenges and opportunities provided by an increasingly interdependent world.
Geography (2.19)	**Students will** • examine how natural resources, resource needs, different perspectives, and trade relationships produce conflict and/or cooperation. • explore how modifications of the physical environment impact human life. • describe the movement of world populations (resulting from "push and pull" factors) and its impact upon events and cultures. • understand that the location and distribution of human features on the Earth's surface change over time due to human needs and events. • understand how factors such as locations of resources and markets, transportation, and technology influence placement, size, and function of human settlements and patterns of movement.
Economics (2.18)	**Students will** • explore ways that different peoples, civilizations, and nations in different time periods dealt with scarcity (imbalance between unlimited wants and limited resources). • understand the forces that caused some economic systems to grow and prosper while others remained stagnant or declined. • examine how people in various civilizations made choices that helped or hindered their economic growth. • analyze how increased productivity resulted in the accumulation of material wealth and changed living standards for various peoples, civilizations, and nations.

World Civilization (cont.)

Academic Expectations	Content/Process
Government and Civics (2.14, 2.15)	**Students will** • compare and contrast different political systems and recognize their sources of power. • analyze causes and consequences of various political revolutions and rebellions. • recognize the political causes and consequences of nationalism, militarism, and imperialism. • analyze conflicts between and among different forms of government and examine the impact of these conflicts on historical events and changes. • examine ways in which modern governments do or do not preserve and protect the rights and liberties of their constituents. • explore ways in which stability and peace are pursued in an interdependent world.
Culture and Society (2.16, 2.17)	**Students will** • explore ways in which belief systems, knowledge, technology, and behavioral patterns define cultures and help to explain historical perspectives and events. • recognize ways in which social institutions (e.g., family, religion, education, government, economy) influence and respond to human needs in various societies. • examine ways in which cooperation, conflict, and competition occur as cultures interact. • analyze problems of ethnocentrism, stereotyping, and cross-cultural misunderstandings and relate these to prejudice and extreme actions such as genocide. • recognize the role of cross-cultural understanding in working toward world stability and peace.

Economics

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • understand how the United States economy has changed from a rural economy to an industrial economy to a leader in the global economy. • recognize that the U.S. Constitution contains few economic guidelines; therefore, economic policies are determined by elected officials. • analyze how the number and complexity of economic issues have increased as the United States has entered the global economy.
Geography (2.19)	**Students will** • understand that the problem of scarcity (unlimited wants and limited resources) must be addressed by all nations. • recognize that nations deal with scarcity by making choices that have consequences. • analyze how nations' wealth and consequent trade potential are tied to its resources. • explore how international trade and multinational corporations have led to the emergence of a global economy.
Economics (2.18)	**Students will** • understand that the basic economic problem confronting individuals, societies, and nations is scarcity or the imbalance between unlimited wants and limited resources available to satisfy those wants. • recognize that, as a result of scarcity, individuals, societies, and nations must make choices/decisions which result in consequences. • analyze economic concepts and understand their nature and relevance to different economic situations. • analyze how individuals and nations deal with the issues of production, distribution, and consumption. • recognize that markets (e.g., national, international, global) and economic institutions exist to enable buyers and sellers to exchange goods and services. • recognize that economic systems are created by individuals and societies to achieve broad goals (e.g., security, growth, freedom, efficiency, equity).
Government and Civics (2.14, 2.15)	**Students will** • understand that voters influence economic policy and decision making through representatives they elect. • recognize that the United States has a market economy which is determined by the forces of supply and demand. • explore other economic systems (e.g., command, traditional) to determine the economic forces that control them. • analyze how decisions on the distribution of resources can be made by local, state, and/or federal levels of government.

Economics (cont.)

Academic Expectations	Content/Process
Culture and Society (2.16, 2.17)	**Students will** • understand how economic incentives of private ownership of property, business opportunities, and profit motives have attracted people from many nations to the United States. • recognize that the economy of the United States is a social institution that attempts to meet the needs of the citizenry. • analyze the role culture plays in economic issues of production, distribution, and consumption.

Government

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • recognize that different forms of governments have developed over time. • analyze different forms of government to determine their effectiveness. • understand the foundations of the United States democratic form of government. • recognize how the United States government has changed over time to meet the needs of the society.
Geography (2.19)	**Students will** • understand how the United States government regulates natural and human resources. • recognize various regions in the United States and understand how their local and state governments may operate differently because of regional needs and differences. • analyze how technology has helped or hindered the operation of government.
Economics (2.18)	**Students will** • understand ways in which the government of the United States is involved in its economy. • recognize various economic systems and institutions in the United States. • understand how the role of the United States government in its economic system has changed over time to meet the needs of the society. • analyze how the United States government deals with questions of production, distribution, and consumption of goods and services.
Government and Civics (2.14, 2.15)	**Students will** • understand the purposes of various forms of governments. • recognize that the U.S. Constitution established a government of limited powers that are shared among different levels and branches. • analyze the importance of rights and responsibilities of citizens in a democratic society. • analyze various events to determine how the U.S. Constitution has allowed our government to change over time to meet the changing needs of our society. • understand the democratic principles of liberty, justice, individual human dignity, the rules of law, and how they relate to our society.
Culture and Society (2.16, 2.17)	**Students will** • understand how forms of government view and interact with various cultures. • examine how governments and their societies work together to establish social institutions to address the needs of people. • analyze how cultures and belief systems are reflected in different forms of governments.

World Geography

Academic Expectations	Content/Process
Historical Perspective (2.20)	**Students will** • understand historical changes in geographic patterns. • recognize how to locate and gather geographic information using primary and secondary sources. • analyze geographic information to evaluate past events and occurrences. • recognize how attempts to acquire territory and resources have resulted in national and international conflicts.
Geography (2.19)	**Students will** • understand that human and physical features of the Earth's surface can be identified by absolute and relative location. • analyze the distribution of human and physical characteristics on Earth's surface. • use geographic tools to analyze patterns resulting from the movement of people on Earth's surface. • understand how and why people interact with and change their environments.
Economics (2.18)	**Students will** • understand how geography affects the way nations deal with issues of production, distribution, and consumption. • recognize that the location of activities (e.g., agriculture, production, distribution) impact national and international relationships. • analyze how markets are affected by location and movement. • recognize that all nations have to confront the problem of scarcity (imbalance between unlimited wants and limited resources).
Government and Civics (2.14, 2.15)	**Students will** • understand how political decisions affect political boundaries at local, state, and national levels. • recognize how natural environments and resources are used and controlled by governments. • analyze how governments impact their human and physical geography.
Culture and Society (2.16, 2.17)	**Students will** • analyze the origin and migration of cultures. • understand how the activities and beliefs of different cultural and social groups affect the use, form, and characteristics of landscapes. • analyze the impact of movement on people and ideas. • analyze how regions and places can have distinct cultural characteristics. • understand how technological advances have impacted cultural assimilation.

Elective Programs

Driver and Traffic Safety Education

Driver and traffic safety education provides students with experiences which enable them to make the decisions necessary to move safely and efficiently within vehicle traffic situations. Through a sequence of classroom and supported driving experiences, students are introduced to the driving skills they need to safely operate a motor vehicle.

During classroom instruction, students learn information about the highway transportation system and the role of the motor vehicle in society. They learn basic maneuvers, decision-making techniques, rules of the road, vehicle maintenance, pedestrian habits, system failures, and driver performance involving alcohol and drugs. Students also receive classroom instruction in operating a motorcycle, career opportunities involving the use of motor vehicles, and financial responsibilities associated with buying, selling, insuring, and maintaining a motor vehicle. In the driving phase of the course, students develop reasonable driving skills through actual behind-the-wheel experiences on the highway.

Foreign Language

In an increasingly interdependent world, dealing with the international market and developing cross-cultural understanding are paramount. Second language study plays a vital role in preparing students for living in a global society. Academic Expectations 2.27 and 2.28 state that students will recognize and understand the similarities and differences among languages, and understand and communicate in a second language. Elementary and middle school second language programs, particularly full or partial immersion programs, capitalize on the natural capacities of children to imitate and assimilate the sound and structural system of a language. Although single or multi-language exploration programs of short or long duration do not stress language skills, they do build cultural awareness. Secondary programs may either build on previous learning or initiate new knowledge.

The curricular framework of a second language program encompasses five organizing principles: communication, cultures, connections, comparisons, and communities.

- **Communicating** in a language other than English is central to second language study, whether that communication is in the form of conversation, writing, or through the reading of literature.

- Mastery of the language cannot be achieved without a knowledge and understanding of the **cultures** in which it is used. The understanding of the perspectives and beliefs of other cultures greatly improves students' abilities to function in a global environment.

- The study of second languages offers **connections** to other content areas, thus allowing students opportunities to reinforce their learning and skills in other disciplines.

- Second language study provides insights into students' native languages and culture. Through **comparisons** of other cultural and linguistic systems, the study of second languages helps students develop critical thinking skills.

- Knowledge of other languages and cultures prepares students for life and work in multilingual and multicultural **communities**.

Military Science
(Reserve Officers Training Corps)

Schools are measured on the proportion of students who make a successful transition to work, postsecondary education, and the military. The military science program or Reserve Officers Training Corps (ROTC) provides students with opportunities to become productive citizens in a democratic society. At the high school level, students in Junior ROTC programs develop leadership and management skills as they gain an understanding of national security requirements. Career counseling and communication skills are combined with problem solving and logical thinking to aid students in pursuing career paths or choices.

The Junior ROTC program offers training for students' all-around development in citizenship, self-discipline, character, team-building skills, and respect for authority in a democratic society. Hygiene, physical fitness, first-aid and survival skills, and health also are stressed.

Integration of knowledge with other content areas, such as mathematics, science, social studies, health, and physical education, is encouraged. Field experiences, close order drill, marksmanship training, uniform inspections, and ceremonies are part of the curriculum along with orientation, and an introduction to the organization of specific military branches. Four military science programs may be offered Air Force, Army, Marine, and Naval Junior ROTC. The content in each of the programs varies with the nature of the military branch.

Vocational Education

Overview

Vocational Education is an essential component of the high school curriculum. For many students, Vocational Education represents as much as one third of their high school experience. Successful transition to postsecondary education, the workplace, or the military is one of the goals of Kentucky's educational system, and the percentage of students making successful transition is a component of the high school accountability index.

A well-planned sequence of courses, which is focused on a career cluster, impacts students' achievement during high school and student success following high school graduation. When high-quality vocational programs are integrated with high-quality academic programs, students understand the relevance of curriculum in preparation for their futures. Employers are demanding that their future employees have the ability to apply their academic and technical skills to real-world problems that are encountered in the workplace. Occupational data indicate that a significant percentage of jobs will require some level of postsecondary education in a technical field. Vocational Education at the secondary level assists in meeting this demand.

Implementation Framework

Vocational education programs and sequences of courses within each program area should be carefully planned to maximize the vocational course offerings at any one school. Decisions concerning which programs and courses are provided should be made through consultation with employers, faculty, parents, and students. In all cases, vocational programs should be offered that meet the needs of students and communities. The content should include broad-based technical skills applicable to occupations in the workplace. Consideration should be given to providing courses over a two-to-three year period to maximize the potential for career exploration and preparation. Students should have opportunities to take vocational courses that will prepare them to meet their career goals.

Specific vocational programs and sequences of courses can be selected from each of the following vocational areas:

Agriculture	Industrial Education
Business Education	Marketing Education
Family and Consumer Sciences	Pathway to Careers
Health Sciences	Technology Education

Students should select courses that complement their required academic coursework and prepare them for successful transition to postsecondary education or the workforce. These courses should be within their area of career interest and based on their IGP.